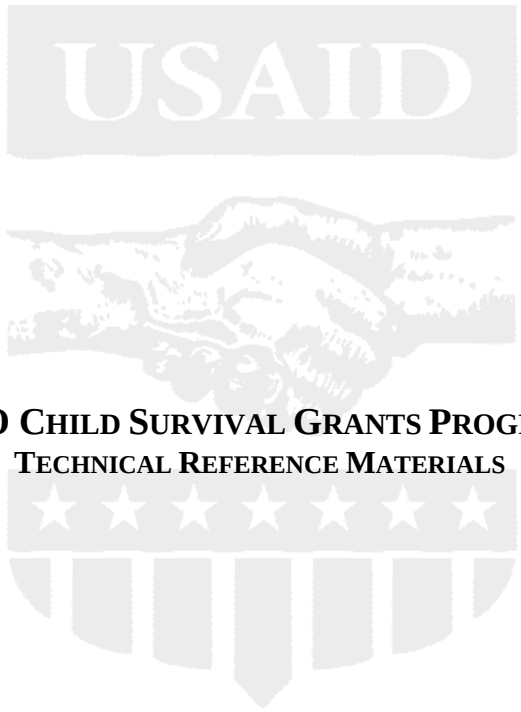
UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT
BUREAU FOR HUMANITARIAN RESPONSE



PVO CHILD SURVIVAL GRANTS PROGRAM
TECHNICAL REFERENCE MATERIALS

OFFICE OF PRIVATE AND VOLUNTARY COOPERATION
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Introduction

This document briefly describes the essential elements of child survival interventions supported through USAID/BHR/PVC's Child Survival Grants Program, lists key resource materials pertinent to each of these interventions, and offers guidance for ordering these resource materials. References that specifically apply to an intervention are listed after each intervention description. Information on where to obtain each reference material accompanies each citation. Order numbers beginning with a PN- or PD- are listed in parentheses for materials that have been published under USAID-funded projects and can be obtained from the Development Experience Clearinghouse. Complete directions for ordering these materials, as well as contact information for material that is not published under USAID-funded projects, can be found in the section entitled "Ordering Information."

A section entitled "Internet References" has been added for each intervention. From the electronic file of this document, you can hyperlink directly to websites listed in these sections.

BHR/PVC is grateful for the many contributions to this document from public health specialists consulted through the Child Survival Technical Support Project; the American College of Nurse Midwives; the BASICS, SEATS, and LINKAGES Projects; other offices of USAID; and our partner PVOs. Special thanks go to Lily Clement, who brought the PVO perspective to this task. BHR/PVC welcomes further suggestions for improvement. Please submit your suggestions to Katherine Jones (e-mail: kjones@usaid.gov).

General Reference Materials

The following references are relevant to PVO child survival programs generally.

Highly Recommended Reference Materials

Murray, John, Gabriella Newes Adeyi, and Judith Graeff. 1997. *Emphasis Behaviors in Maternal and Child Health: Focusing on Caretaker Behaviors to Develop Maternal and Child Health Programs in Communities.* Partnership for Child Health Care, Inc. Washington: USAID. (PN-ACA-444; French PN-ACD-467)

A multidisciplinary team of medical and behavioral specialists developed a list of sixteen emphasis behaviors: criteria for identifying the emphasis behaviors included their impact on multiple disease areas, demonstrated relationship with mortality and morbidity, impact on the most important public health problems in developing countries, measurability, and their feasibility for change and cost-effectiveness. The emphasis behaviors fall under five categories: (1) reproductive health practices; (2) infant and child feeding practices; (3) immunization practices; (4) home health practices; and (5) care-seeking practices.

Healthlink Worldwide. *Child Health Dialogue*. London.

Child Health Dialogue (CHD) is a quarterly international newsletter focusing on child health and prevention, aimed at health and development workers at district level. This newsletter contains clear, practical advice on preventing and treating the main childhood illnesses. CHD is free to readers in developing countries.

To subscribe to a published version of "Child Health Dialogue," contact Mary Helena, Publications Secretary, Healthlink Worldwide, 29-35 Farringdon Road, London EC1M 3JB. Tel: +44 171 2420606, Fax: +44 171 2420041, e-mail: info@healthlink.org.uk; Internet: http://www.healthlink.org.uk/. For the electronic version of CHD, please contact hnet@usa.healthnet.org.

Center for Population, Health and Nutrition, U.S. Agency for International Development. User's Guide to USAID/Washington Population, Health and Nutrition Programs. January 1999. Copies available from Pal-tech, Inc. Tel: 202-661-0374, Fax: 202-783-2767. Project descriptions from this User's Guide can be accessed at http://www.info.usaid.gov/pop-health

Other Recommended Reference Materials

Aga Khan Foundation/Samboon Vacharotai Foundation. 1993. *Primary Health Care Management Advancement Programme* (PHCMAP). Bangkok, Thailand:

The files can be downloaded at
http://www.jhsph.edu/People/Org/DeltaOmega/software/archive/phcmap-doc/

Text files for the 21 manuals in the Primary Health Care Management Advancement Program print to almost 1900 pages. Each of nine basic modules includes a User's Guide, a Facilitator's Guide, computer programs, and references.

This web site gives a summary and the intended use of the documents http://erc.msh.org/toolkit/map.htm. It also contains contact information for ordering.

de Negri, Bérengère, Lori DiPrete Brown, Orlando Hernandez, et al. 1997. *Improving Interpersonal Communication Between Health Care Providers and Clients.* Johns Hopkins University School of Public Health; Academy for Educational Development. Washington: USAID. (PN-ACE-294)

(60 pages plus 6 annexes)

Jamison, Dean T., W. Henry Mosely, and Anthony R. Measham. eds. 1993. *Disease Control Priorities in Developing Countries.* New York: Oxford Medical Publications.

These two volumes examine ways in which the health transition in developing countries affects the World Bank's disease control policies. They discuss the public health consequences of individual diseases and disease clusters, measure the cost-effectiveness of disease control methods, and assess what public health problems these conditions pose. Infectious diseases, HIV infection and sexually transmitted diseases, malnutrition, and reproductive health in the developing world are analyzed and tables and figures throughout the text quickly summarize the authors' findings. (OUP Abstract)

Office of Health and Nutrition. April 1995. *A Tool Box for Building Health Communication Capacity.* Academy for Educational Development. Washington: USAID. (PN-ABU-931)

UNICEF. 1998. *The Progress of Nations: 1998*. New York: UNICEF.

Also available online at http://www.unicef.org/pon98/

Internet References

"Stabilizing World Population Growth and Protecting Human Health: USAID's Strategy." [http://www.info.usaid.gov/pop_health/strategy.htm]. N.d.

UNICEF. December 1998. *The State of the World's Children: 1999*. [http://www.unicef.org/sowc99/].

World Health Organization (WHO). [http://www.who.ch/].

Use the search engine to find several interesting entries on child survival topics.

Immunization

Child immunization is widely regarded as one of the most cost-effective public health interventions for reducing child morbidity and mortality. The true goal of immunization programs is to reduce the incidence of vaccine-preventable diseases in children by means of high coverage with potent vaccines by the end of the first year of life. The target diseases are poliomyelitis; diphtheria, pertussis, and tetanus (DPT); and measles. The WHO goal is to achieve national coverage rates of 90 percent for all vaccines by the year 2000, although the difficulty in achieving this goal within a particular community varies according to local resources and conditions.

Tetanus toxoid should be provided to all pregnant women in the form of two doses during pregnancy, up to a total of five doses for lifetime protection. Where feasible, all women of child-bearing age should be vaccinated with tetanus toxoid, depending on resources and MOH policy.

In countries or regions where TB is common, WHO also recommends immunization against tuberculosis with BCG vaccine. Although there is uncertainty surrounding the effectiveness of BCG in later childhood, there appears to be agreement that BCG vaccination protects infants and young children against tuberculous meningitis and disseminated TB. Immunization against yellow fever is recommended in endemic countries.

WHO promotes integration of hepatitis B vaccination into the vaccination programs of all countries. This integration has been difficult in some developing countries as the vaccine remains relatively expensive compared with the OPV, DPT, and measles vaccine. Despite the cost, it should form part of the routine schedule in countries with a hepatitis B carrier prevalence of 2 percent or higher. In countries where mother-child transmission is a major cause of infection, such as in Southeast Asia, the first vaccination should be given at birth. In countries where mother-child transmission is not so important, the vaccine can be commenced at the same time as DPT.

Children who fail to receive vaccination or who fail to complete the series are rarely randomly distributed within a project area. They are usually clustered within pockets of need defined by geography, poverty, ethnicity, and/or other demographic factors. Identification of these groups and the barriers they face is an important first step in addressing the barriers and in boosting vaccination coverage. Another important consideration is how to address "missed opportunities." This term refers to times when there is contact between a health care provider and a child eligible for vaccination, but vaccination is not given. Approaches to reducing missed opportunities include combining the vaccination and health care clinics, making vaccination available whenever the clinic is open, training health care workers to review the vaccination status of all children presenting to the clinic and providing vaccination where indicated, and/or providing vaccine and training to community health workers who visit children's homes.

Ensuring provision of potent vaccine is an important component of an immunization program. The provision of ineffective vaccine is worse than providing no vaccine at all because an ineffective vaccination damages the community’s confidence in the vaccination program (“My

child got the vaccine but still got measles"); subjects the child to the inconvenience and risks of vaccination without benefit; and marks the child as having been vaccinated, therefore precluding effective vaccination in the future. Contaminated or poorly maintained vaccine is also more likely to cause reactions and illness than is pure and well- maintained vaccine. PVO staff should take all possible steps to ensure that the vaccines provided are in good condition. This provision is achieved by obtaining vaccine from a source that adheres to WHO quality requirements and by tracking and maintaining the cold chain from this source to the child who will receive the vaccine. If possible, monitoring efficacy at the population level through surveillance of immunizable diseases is also desirable.

Reviews of immunization programs highlight the importance of ongoing monitoring of critical processes even if a program is reported as having "good quality." If possible, PVO immunization programs should include ongoing monitoring systems for the vaccine logistics systems (looking at vaccine potency, refrigerator temperature, storage facility adequacy, injection safety, etc.). If disposable needles are used, the program should ensure that there are fail-proof systems in place to ensure that needles are disposed of without risk to the client, provider, or the public. Service providers should be monitored to ensure they are screening for immunization status and providing appropriate counseling and proper administration of vaccines. Using exit interviews of mothers leaving immunization services is one way to assess provider counseling skills.

Other activities that may be part of an immunization program:

Vitamin A Supplementation

Vitamin A supplementation can substantially reduce under-five mortality in areas where there is vitamin A deficiency. In many countries this intervention has been documented to be more cost-effective than full immunization coverage. Child immunization contacts may be a good opportunity to provide vitamin A supplements to infants and children over 6 months of age (and to younger infants who are not breastfed, depending on national policy), but the PVO must look for other mechanisms to supplement the full target group for VA (6mo-6yrs). PVOs may consider including vitamin A supplementation as part of immunization programs, if feasible, even if the project is not otherwise involved in nutrition interventions. (Please refer to the Nutrition and Micronutrients section of this document.)

Polio Eradication Activities

PVOs are encouraged to support polio eradication activities in their project areas, including surveillance for acute flaccid paralysis (AFP); support of national immunization days (NIDs); education and social mobilization; and/or support for routine immunization, where feasible.

Surveillance

Surveillance of immunizable diseases can provide a real measure of project impact and early warning of epidemics. Where possible, surveillance should be done for polio (AFP), measles, and neonatal tetanus. Surveillance can be passive and done at the clinic level. Each case of vaccine-preventable disease is investigated to determine whether or not the child received a vaccination. The percentage of cases vaccinated can be used to monitor the efficacy of the

vaccine, when used in combination with the estimated percentage of the population vaccinated.1 Evidence that the vaccine efficacy is declining and the number of cases increasing should prompt investigation of the cold chain and administration procedures or a search for new clusters of unvaccinated people in the population.

Where a disease surveillance system already exists in the project area, PVOs should participate and contribute to this system and use the resulting data. In areas without disease surveillance, PVOs should consider working towards establishing such a system.

Surveillance for polio eradication may involve weekly reporting of cases of AFP through key informants at the community level and cooperation with health facilities in collecting and transporting laboratory specimens.

Highly Recommended Reference Materials

WHO. 1999. *Immunization in Practice—1999 Revision*. Geneva: World Health Organization. (WHO/EPI/TRAM/98.01-11)

> Essential information on all aspects of immunization targeted to those responsible for the planning, implementation, and evaluation of immunization services to women of child bearing age and children in their first year of life. These modules are relevant to all responsible groups including: parents, communities, mobilizers, health care workers, supervisors, and district level stakeholders (including NGO/PVO partners). Their most effective use is for job training and in-service education.
>
> Download the modules at http://www.who.int/gpv-documents/DoxTrng/H4IIP.htm or order a paper copy by sending an e-mail to gpv@who.ch or by writing to GPV Document Centre, Global Programme for Vaccines and Immunization, World Health Organization, 1211 Geneva 27, Switzerland. Be sure to include: your full name, title, organization, and mailing address; and the document's full title, ordering code, language, and quantity.

Other Recommended Reference Materials

Child Health Dialogue: Priorities in prevention. 1999. Healthlink Worldwide. January–March 1999, issue 14. New York: Oxford University Press. (Available through Healthlink Worldwide, Farringdon Point, 29-35 Farringdon Road, London EC1M 3JB UK. Fax: 44 171 242 0041. E-mail: publications@healthlink.org.uk Web site: http://www.healthlink.org.uk

> This issue of *Child Health Dialogue* provides a condensed overview on important technical information necessary to provide quality immunization services. It is an excellent reference for PVOs new to the topic. Contents include the basic WHO-recommended immunization schedule, a description of the vaccines and injection

technique, new vaccines for children, the cold chain and avoiding vaccine wastage, and injection safety.

WHO. Safe Injection Practices. [http://www.who.int/gpv-dvacc/service/Safe_inj.htm]

Safe injection is a continuing challenge for all immunization programs. Three options currently exist for administering injectable vaccines: sterilizables, disposables, and auto – destruct. Material identifies key issues in the planning and implementation of injection practices.

Internet References

World Health Organization (WHO). [http://www.who.org].

Contains detailed descriptions of WHO recommendations and the rationale behind them, as well as extensive technical information on vaccines. This information can be found using the web site's in-house search engine.

Information on EPI Policy:
[http://www.who.org/programmes/gpv/gEnglish/avail/gpvcatalog/policy.htm#Im3]

Details on the current recommended EPI schedule:
[http://www.who.org/programmes/gpv/gEnglish/epi/epi_over.htm]

Nutrition and Micronutrients

Malnutrition contributes to about half the deaths of children under five in developing countries, and even mild malnutrition increases the risk of death. The goal of this intervention is to decrease malnutrition-associated under-five mortality by improving the nutritional status of infants, children, and/or pregnant and lactating women. Approaches to prevent child malnutrition, rehabilitate malnourished children, and promote maternal nutrition, including micronutrient activities, as well as approaches designed to increase household availability of foods, are discussed below. PVOs implementing a nutrition and micronutrients intervention may include any of these approaches in their programs but are not expected to implement them all.

Leading authorities in public health nutrition have reviewed epidemiologic and programmatic data to identify the most important nutrition behaviors and the effectiveness of programs to change these behaviors. Six primary behaviors were selected on the basis of criteria such as the demonstrated relationship to morbidity and mortality, ability to be changed through cost-effective public health programs, and measurability, and published in 1997 for USAID by the BASICS Project in "Improving Child Health Through Nutrition: The Nutrition Minimum Package." This "Minpak" of nutrition interventions aims to achieve the following six nutrition behaviors:

- Exclusive breastfeeding of infants for at least four, and if possible 6 months
- Appropriate complementary feeding from about 6 months of age, and continued breastfeeding until 24 months
- Appropriate nutritional management of all sick children (continued feeding and increased fluids during illness, increased feeding after illness, and provision of two doses of vitamin A to measles cases)
- Adequate intake of vitamin A-rich foods and/or vitamin A supplements by women, infants, and children
- Adequate intake of iron
- Adequate intake of iodized salt.

Programs in countries or areas where vitamin A deficiency (VAD) is a public health problem are particularly encouraged to consider including a vitamin A intervention. The WHO provides a list of countries with VAD (see VA References), additionally, PVOs may use the simple cut off suggested by WHO in 1996: U5MR>70. There are also many clinical (e.g. nightblindness) and biochemical (e.g. serum retinol) surveys that can be done to determine if there is VAD in the program area (see references for more information).

Because of its demonstrated impact on child survival, vitamin A interventions are a priority of USAID. Several research studies in Asia and sub-Saharan Africa have demonstrated that vitamin A supplementation can reduce mortality in children between 6 and 59 months of age by 23 to 34 percent. Providing vitamin A supplements to this age group every 4 to 6 months is recommended by the WHO and may be feasible through many PVO child survival programs, even if other nutrition and micronutrient activities are/are not being implemented. It should be noted that the mortality and morbidity reduction of VA is very high **beginning at 6 months** of age. In some countries there appear to be lingering concerns about the safety of high-dose supplementation for infants (100,000IU). Some transient side effects may be reported in this age

group, but no lasting, detrimental effects have been shown and the mortality reduction impact of supplementation will far outweigh the side effects.

Nutritional Improvement for Infants and Children

Interventions to prevent childhood malnutrition should promote feeding practices that ensure adequate growth and reduce the detrimental effects of illness. Programs should emphasize optimal feeding practices that differ by the age of the infant/child and by whether the child is ill or well. Most of the approaches discussed in this section require specialized local assessments to develop concrete and culturally appropriate strategies and messages, appropriate training with extensive practice, and strong supervision and quality control, to ensure health workers have good technical and counseling skills.

Previously, WHO recommended introducing complementary feeding at age 4 to 6 months because it was believed that breast milk alone was not adequate to support growth of some infants during this period. Furthermore, it was also thought that complementary feeding should begin before 6 months of age in order to get infants used to eating other foods. However, recommendations have recently been changed, following a study in Honduras that compared food consumption patterns and growth of infants who started eating foods at 4 months to those who began eating complementary foods at 6 months of age. The study confirmed that early initiation did not result in improved growth velocity.

One relatively new approach to nutrition rehabilitation which has been working very well and takes a holistic approach to nutrition is the Hearth nutrition model. The model involves mothers, families, and neighborhoods in rehabilitating their own malnourished children by using local food and know-how. The goal of this approach is to not only rehabilitate the participating children but also reduce the prevalence of childhood malnutrition in the community and to energize the mothers and community to take broader, sustained action against malnutrition and poor health. The Hearth intervention takes place in the context of growth monitoring and counseling and micronutrient supplementation. In the early 1990s, the Hearth approach was initiated in Bangladesh by World Relief Corporation and the Christian Service Society as part of a PVO child survival program, in Haiti by the Albert Schweitzer Hospital, and in Vietnam by Save the Children (U.S.) and local government. An evaluation of the Haiti program indicates that while the short-term rehabilitation of severely and moderately malnourished children was highly motivating to mothers, in the long term the most important impact of the program appears to have been the prevention of nutritional deterioration in mildly malnourished children. The evaluation of the Vietnam program found that severe and moderate malnutrition in the community was virtually eliminated and led to plans for national implementation. A description of the above programs can be found in the references.

Guidelines for a health-facility-based approach to the management of childhood malnutrition are included in the WHO/UNICEF materials for the Integrated Management of Childhood Illness (IMCI). The IMCI charts and manuals for health facility clinicians include guidelines for assessing and treating malnourished children, counseling on complementary feeding, vitamin A and iron supplementation, and treatment of worms.

Growth Promotion Monitoring, Counseling, and Follow-up

Growth monitoring is conducted to identify children who are falling behind in growth. It provides the opportunity to promote growth, take corrective action, and reinforce positive feeding behaviors. Effective growth monitoring programs include the following elements: regular assessment of child growth; making decisions about what actions the caregiver should take for the child; making decisions about what the community or programs need to do to support the family and follow up on the effects of the actions taken. Appropriate training with extensive practice, strong supervision, and quality control to ensure health workers have good technical and counseling skills, is particularly important for growth monitoring activities.

As some children will fail to gain weight despite improved feeding practices, programs can consider providing extra food for growth-faltering children, ensuring access to effective medical care, and making plans for follow-up of children returning to the community. Growth monitoring efforts can also include methods to identify the children least likely to attend growth monitoring sessions and to target them for weighing.

Maternal Nutrition

Maternal nutrition status relates to maternal and child health and survival in several ways. Birth weight is the single most important determinant of an infant's chance of survival. Low birth weight is the result of intrauterine growth retardation and/or prematurity. Insufficient weight gain by the mother during pregnancy and low pre-pregnancy weight significantly contribute to low birth weight. Improving a mother's weight gain during pregnancy protects the health of the mother and improves birth weight, thus decreasing infant deaths. Weight gain also helps in the proper physical and cognitive development of the unborn baby.

The major causes of maternal mortality are hemorrhage, eclampsia, unsafe abortion, infection, and obstructed labor. Malnutrition plays a role in most of these. Obstructed labor often occurs among nutritionally stunted women, who are short in stature as a result of chronic malnutrition and poor diet quality. Malnutrition and anemia intensify the severity of infection and contribute to deaths from hemorrhage and infection.

Both well-nourished and mildly malnourished women produce breastmilk of high quality and adequate quantity. Only under extreme conditions is the supply and energy-protein content of breastmilk affected. However, mothers with adequate fat stores produce milk higher in fat content. Consequently, their infants need to suckle less to obtain sufficient energy. The micronutrient content, however, of the breastmilk may be compromised, depending on the woman's diet.

A mother's own health and nutritional status can also be compromised if her nutritional stores are depleted to nourish her child. Short intervals between pregnancies and/or the overlap of lactation and pregnancy into the third trimester (an overlap that is experienced by as many as half the women in some countries) can result in lower weight gains in pregnancy. This low weight gain sets up a cycle of intergenerational growth failure.

If a woman is sick, anemic, malnourished, depressed, or exhausted from heavy physical labor, her care-giving ability will be diminished. Poor nutrition can limit a mother's ability to seek preventive and curative care for herself and for her children.

Recommended practices to protect the nutritional status of women between the ages of 10 and 49 years include the following:

- Increased caloric intake and/or reduced workloads to 1) meet increased nutritional demands during adolescent growth, pregnancy, and lactation and 2) improve pre-pregnancy nutritional status
- Increased micronutrient intake through daily consumption of fruits and vegetables, and/or micronutrient supplements, and/or consumption of fortified foods, whichever is feasible and appropriate (women of all ages should be encouraged to eat a wide variety of micronutrient-rich foods, especially those rich in vitamin A, iron, and folic acid. In iodine-deficient areas where iodine-fortified foods are not available, iodine supplements are also recommended)
- Delay of the first pregnancy, increase in birth intervals, and reduction of fertility.

Quality health care services can improve maternal nutritional status through effective nutrition and breastfeeding counseling, maternal care, and family planning services. Counseling men to make more food available to households and/or to women within the household may also contribute to improved maternal nutritional status and improved birth outcomes.

Interventions designed to improve the nutritional status of non-pregnant adolescent girls may have a positive impact on both mothers and children but are beyond the scope of this program. PVOs may propose interventions in adolescent reproductive health but fund these activities from sources other than BHR/PVC (such as PVO match funds).

Pregnancy

During pregnancy, a woman should increase her energy intake by 300 kcal per day. Ideal pregnancy weight gain should be gauged by pre-pregnant body mass index (BMI); women with low pre-pregnant BMI should gain 12.5 to 18 kg. This weight gain can be achieved by adding an additional full serving per day of the staple food (rice, cornmeal, millet, sorghum, yams, bread, etc.). Adding additional calories through a variety of available local foods, including protein sources, is the ideal but is not always possible. Where food security is a problem, recommending an increase in the family staple is the easiest and cheapest way to increase the caloric intake of a pregnant woman. In some countries, pregnant women should be encouraged to reduce their physical workload during late pregnancy to increase weight gain. During pregnancy, the body's need for iron increases, and iron supplementation is often recommended. Iron supplementation is discussed under the Micronutrient interventions section below.

Lactation

A lactating woman needs to increase her energy consumption by about 500 kcal/day to meet the demands of lactation, particularly if she cannot draw from fat stores accumulated during pregnancy and if she is exclusively breastfeeding. Increased energy intake may also help to build

a mother's confidence in her ability to breastfeed exclusively. As in pregnancy, an additional one or two servings of the staple food can provide these calories.

A lactating woman and her baby will both benefit if she receives a 200,000 I.U. vitamin A supplement immediately postpartum or as soon as possible within the first 8 weeks after delivery. PVOs can coordinate efforts for postpartum vitamin A capsule administration with local maternal care delivery activities.

Micronutrient Interventions

The micronutrients most suitable for community-based PVO programs include vitamin A, iron/folic acid, and iodine. Each of the major micronutrients affecting child and maternal health require special implementation strategies in programming and are thus described separately here.

Vitamin A

A PVO has several options when implementing a VA approach:

1) Supplementation- Low cost and relatively easy to implement. This intervention should not be thought of as a short-term approach, rather a single aspect of a complete strategy to reduce VA within a project area, region or country.
2) Food-based approach-This includes improving the production and consumption of foods rich in VA. Adapting to local and cultural norms is important to the success of this intervention (this is discussed in more detail below).
3) Fortification-While this has traditionally not been an area of involvement for PVO there are important leadership and coordination opportunities that should be explored PVOs.

While any individual PVO may opt for only one VA (or micronutrient) strategy, it is now being recommended that areas with VAD approach the problem for a variety of strategies and interventions. The reason for this being that the redundancy serves to protect the area in case one strategy fails. The other reason is that some interventions may be more appropriate for an area than others (for example, if a country has a fortification program but finds that the fortified food is not reaching a remote district, the country may partner with a PVO and request assistance supplementing the area).

In summary the documented benefits of VA are as follows (from VA Global Initiative, UNICEF/MI/WHO/CIDA/USAID):

- Improving the VA status of deficient children aged 6 months to 6 years dramatically increases their chances of survival.
- Risk of mortality from measles is reduced by about 50%, from diarrhea is reduced 40% and overall mortality is reduced by 25-35%.
- VA is at least as effective as immunization or oral rehydration in mortality prevention. (The three are not, of course, mutually exclusive.)
- Improving vitamin A status of deficient children reduces the severity of infectious illness, especially measles and chronic diarrhea. Good vitamin A status is associated with reduction

in the rate of hospital admissions and reduced need for out-patient services at clinics and therefore lower overall cost of health services.

- Recent studies suggest that preventing VAD of women during and before pregnancy greatly reduces their risk of mortality and morbidity around the time of childbirth, probably through increasing resistance to infection and lowering levels of anemia. A recent study by Johns Hopkins University, found a 46% reduction in maternal mortality when using the low dose supplementation (see scientific references).
- VAD contributes to anemia. Children and pregnant women whose VA status is improved though fortification or supplementation have been shown to experience increases in hemoglobin concentration. VAD impairs iron utilization.

VA Supplementation Protocols (WHO, 1997):

Target Group	Dose
Infants < 6 months of age, only if not breastfed. (Breastfeeding infants should be protected by post-partum dosing of mothers)	50,000IU orally
Infants 6-12 months of age	1000,000 IU orally, every 4-6 months
Children > 12 months of age	200,000 IU orally, every 4-6 months
Mothers (post-partum lactating)	200,000 IU orally within 8 wk. of delivery

Treatment with VA

Immediate treatment with high dose vitamin A capsules is particularly important for children with xerophthalmia, severe infectious disease (particularly measles), and severe protein-energy malnutrition (<3 S.D. weight/height or <12.5 cm mid-upper arm circumference). PVO programs can develop methods to identify these children, offer prompt referral, and ensure they receive appropriate doses of vitamin A supplements.

VA for women

Frequent supplementation with small doses of vitamin A (not exceeding 10,000 I.U. daily or 25,000 I.U. weekly) is also appropriate and may be beneficial for all women of childbearing age. However, large doses of vitamin A during pregnancy are teratogenic (may cause birth defects) particularly early in pregnancy. Thus, a woman of childbearing age should receive high-dose vitamin A only when it is reasonably certain that she is not pregnant (immediately postpartum, or within 8 weeks after delivery), or when she herself requires treatment for potentially blinding xerophthalmia (in cases of acute corneal lesions), in this case, the woman's risk of mortality outweighs the chance of a birth defect.

Food-based strategies for micronutrients

As noted earlier a variety of approaches has been found to be the most effective way to deal with VA deficiency. This is also likely the case for other micronutrients and nutrition in general.

A food-based approach that is developed with strong knowledge of cultural preferences is an important aspect of a nutrition (and CDD) intervention.

Nutrition education messages should be adapted to promote consumption of locally available sources of vitamin A and fats, wherever possible. In areas where sources of vitamin A are scarce, expensive, or seasonal, PVOs may consider promoting home gardening or other agricultural activities as complementary activities in the Child Survival Program, emphasizing foods high in vitamin A. The strategy for micronutrient gardens should include a variety of foods, year-round availability, a women-centered approach, and high-quality seed production.

It should be noted that there is a body of new evidence to suggest that vitamin A precursors in orange/yellow fruits and vegetables are twice as effective in enhancing serum vitamin A levels as are those found in dark green leafy vegetables, but neither fruits nor vegetables are as effective as animal products (dairy products, eggs) in maintaining stores. The absorption of vitamin A precursors is improved when fruits and vegetables are mixed with a source of fat.

Iodine

Iodine deficiency increases the risk of spontaneous abortions and stillbirths and causes impaired fetal brain development and infant death. It is the cause of goiter and of cretinism, which reduces the mental capacity of infants. Promoting and monitoring consumption of iodine-fortified products such as salt, if available, may be practical for some child survival programs and could have a measurable impact on mortality and morbidity. In program areas where iodine deficiency is a problem and where iodized salt is not available, programs may consider providing oral iodized oil supplements annually. Other alternatives include iodized water or administration of Lugol's iodine solution monthly.

Iron

Iron deficiency anemia affects both women and children. It diminishes the ability to fight infection, increases risk of death in children with malaria, and is the most common micronutrient deficiency among women in developing countries, where approximately 40 percent of women of reproductive age are anemic. Iron deficiency is prevalent among pregnant women because iron requirements are greatly increased during pregnancy. Iron deficiency is a cause of maternal morbidity and severe anemia, which is a cause of maternal mortality. Anemia causes fatigue and apathy in both women and children.

Iron deficiency is by far the most common cause of anemia. Where anemia is due to low dietary iron intake/bioavailability (low consumption of heme iron food sources--meat, poultry, and fish) and low consumption of iron-fortified foods, and these foods are available in the project area, anemia prevention can include nutrition education. Inclusion of nutritional messages discouraging iron-inhibiting foods/fluids (such as tea with meals) and promoting iron-enhancing substances (such as vitamin C-rich foods) may contribute to the effectiveness of a dietary approach. Recent research suggests that requirements for iron during pregnancy cannot be met when animal products are rarely consumed. In areas where the prevalence of anemia is 40 percent, iron supplementation is recommended for all pregnant women (without screening) to prevent and treat anemia.

Anemia in children may also be treated with iron supplements. A recently released INACG publication, *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency*

Anemia, provides guidelines for supplementation of women and children and should be consulted before initiating an iron supplementation program. (see references for more on this publication)

Failures of iron supplementation programs have largely been the result of unreliable supply, lack of counseling about dosage, and client noncompliance due to minor side effects. Thus, PVOs involved in iron/folate supplementation are recommended to devote particular attention to these issues.

Treating malaria is essential for treating severe anemia where *P. falciparum* malaria is endemic. In high transmission areas, malaria control can decrease the prevalence of severe anemia in young children, the prevalence of anemia during first and second pregnancies, and the rate of low birth weight.

In areas where the prevalence of hookworm is greater than 20 percent among children aged 2 to 5 years, periodic (usually twice a year) deworming is indicated for children over age 2 years and for pregnant women. The contribution of hookworm as a cause of anemia generally increases with age and severity of infestation. Thus older children and pregnant women are more at risk. Although there was earlier published information on contraindications of antihelminthics in pregnancy, we now know that they are safe if not given during the first trimester. While women and children will usually become reinfected, the improvement of anemia in both women and children and the increased growth in children is significant. Deworming of children less than 2 years of age is not recommended because these children are much less exposed to infection.

Supplemental Feeding

Supplemental feeding activities can be important in times of severe food shortages. However, by itself, supplemental feeding is not a sustainable approach to correcting maternal or child malnutrition. Where PVOs are engaged in such programs, the integration of other health and nutrition activities known to improve nutritional status can enhance the effectiveness of the feeding program.

Successful supplemental feeding programs have explicit nutrition objectives and a plan for sustaining health and nutrition activities when the supplemental feeding ends. When a child enters a supplemental feeding program, an assessment of infant feeding practices is performed to determine possible problems that contribute to the child's condition. When problems are identified, a caretaker receives the same quality nutrition counseling services and follow-up as described in the Growth Monitoring section of this document.

Home Gardens and Other Agricultural Activities

As a complement to the child survival program, household food security can be addressed by PVOs through a strategy to increase the household supply of and access to nutrient-rich foods. Since research shows that animal sources of iron and vitamin A are significantly more bioavailable than those from vegetable and fruit sources, increasing consumption of animal sources of vitamin A is also encouraged.

Most families in developing countries engage in agricultural activities for economic reasons. Therefore home gardens and other agricultural activities do not, by themselves constitute a nutrition intervention. The role gardens play in improving the diet of mothers and children largely depends upon the objectives of the activity and the implementation strategy. Agricultural programs established solely for the purpose of income generation or worker incentives have not demonstrated positive impact on household nutritional status. Targeted gardening programs with specific nutritional objectives have succeeded in demonstrating nutrition-related improvements.

Mothers of small children in developing countries have extremely heavy workloads, and additional agricultural activities to be undertaken primarily by women can further increase the burden. The DIP for agricultural activities, therefore, should describe which family members will be involved in the activity, family time and resource constraints to participation, PVO activities to promote consumption of the products by target populations at the household level, and the means of monitoring consumption.

Appropriate storage is important for the success of agricultural activities. Measures to reduce food losses should be promoted. For example, solar drying can increase the year-round availability of some foods. Child survival programs may enhance the effectiveness of their efforts by becoming familiar with the activities of PVOs/NGOs specializing in small-scale agricultural programs.

Funding for agricultural activities in child survival programs should come from PVO matching resources rather than from AID/BHR/PVC funds.

Highly Recommended General Nutrition Reference Materials

Sanghvi, T. et al. 1999. Nutrition Essentials: A Guide for Health Managers. Developed by BASICS, WHO, and UNICEF. Copies may be ordered from the BASICS Project.

Health managers working at the central or district level in developing countries can use the information in this guide to strengthen nutrition activities in their programs. Other sector managers in agriculture, education, rural development, and social welfare programs will also find this guide useful to enhance their nutrition activities. This guide is neither a full, societal, multisectoral review of nutrition problems nor does it provide answers to solve all nutrition problems. However, health managers can use it to look up current nutrition protocols and guidelines; learn the technical reasons for focusing on certain nutrition outcomes and interventions; find checklists that can be adapted locally for program planning, training, supervision, and evaluation; discover new ideas to solve common problems; and develop training aids, design curriculum, and make overheads and handouts.

Recommended General Nutrition Reference Materials

King, Felicity Savage, and Ann Burgess. 1993. *Nutrition for Developing Countries*. Second edition. Oxford University Press.

Piwoz, E. Appendix E: Ideal Nutrition Practices. In the *Report on the Fifth Annual Latin America Regional PVO Child Survival Workshop*, Cerro Verde, El Salvador: Child Survival Technical Support Project, Macro International Inc. Available from publishing entity.

Sanghvi, Tina, and John Murray. 1997. *Improving Child Health Through Nutrition: The Nutrition Minimum Package*. Partnership for Child Health Care, Inc. Washington: USAID. (PN-ACB-558)

This paper presents the six primary caretaker behaviors with a demonstrated relationship to morbidity and mortality, and an ability to change through cost-effective public health programs, and measurability: (1) exclusive breastfeeding for 6 months; (2) appropriate complementary feeding starting at about 6 months in addition to breastfeeding until 24 months; (3) adequate vitamin A intake for women, infants, and young children; (4) appropriate nutritional management during and after illness; (5) iron/folate tablets taken by all pregnant women; and (6) regular use of iodized salt by all families.

Wagman, J. and P. Winch. 1999. *A Guide to Resources on Implementing and Evaluating Nutrition Interventions for Managers of PVO Child Survival Projects*. Child Survival Technical Support Project. Calverton, MD. Available from the Child Survival Technical Support Project (CSTS).

This guide describes some of the existing manuals for increasing the capacity of PVOs to prevent nutritional problems by implementing intervention programs. Information is provided to assist would-be users to select manuals most appropriate to their needs. It is designed for trainers, program officers, program managers, and others in the PVO community who are considering using nutrition interventions to help them design more effective health programs and/or evaluate the strengths and weaknesses of existing programs. It is assumed that the reader is already familiar with the major nutritional problems found in low-income counties and the interventions available to address them.

Infant and Young Child Feeding

Academy for Educational Development. November 1998. “Facts for Feeding: Guidelines for Appropriate Complementary Feeding of Breastfed Children 6–24 Months of Age.” LINKAGES Project. Washington: USAID. (English; Spanish; French)

Dickin, Kate, Marcia Griffiths, and Ellen Piwoz. June 1997. *Designing by Dialogue: A Program Planners Guide to Consultative Research to Improve Young Child Feeding.* The Manoff Group; Academy for Educational Development. Washington: USAID. (PN-ACE-296)

Wollinka, Olga, Erin Keeley, and B. Burkhalter, eds. 1997. *Hearth Nutrition Model: Applications in Haiti, Vietnam, and Bangladesh*. World Relief Corporation; Partnership for Child Health Care, Inc. Washington: USAID. (PN-ACA-868)

The Hearth nutrition model was introduced in Haiti, Vietnam, and Bangladesh in the early 1990s. The model has evolved from earlier community-based approaches to

alleviating childhood malnutrition. The focus is on energizing volunteer mothers to rehabilitate malnourished children using local, affordable, nutritious positive-deviant foods for two weeks in the context of a growth monitoring and counseling program. The visible change in the children is a powerful motivator for mothers to continue good feeding practices acquired through adult learning practices (self-discovery, learning by doing) in the Hearth feeding sessions. Hearth programs are meant to be supported by other programs such as deworming, growth monitoring, income generation, and micronutrient supplementation.

WHO/UNICEF. 1995. *Integrated Management of Childhood Illness*. Child Health and Development. Geneva: World Health Organization. (WHO/CAH/995.14)

The IMCI charts and manuals for health facility clinicians include guidelines for assessing and treating malnourished children, counseling on complementary feeding, vitamin A and iron supplementation, and treatment of helminths.

Growth Monitoring and Promotion

Griffiths, Marcia, K Dickinson and M. Favin, 1996. Promoting the Growth of Children: What Works. No 4 in the Nutrition Toolkit Series, The World Bank, Washington.

Brownlee, Ann. 1990. *Growth Monitoring and Promotion: Behavioral Issues in Child Survival Programs.* Washington: USAID. (PN-ABG-752)

This monograph, the sixth in a series, examines key behavioral aspects of GM/P. Topics include: (l) local beliefs and practices concerning infant and child growth; (2) health workers' beliefs and practices affecting GM/P project development; (3) strategies for promoting effective individual and community participation; (4) design of GM/P technology that takes account of behavioral findings; (5) behavioral aspects of promotional and follow-up activities; (6) expanding and sustaining effective GM/P projects; and (7) methods for studying behavior related to GM/P.

Jelliffe, Derrick Brian, and E. F. Patrice Jelliffe. October 1990. *Growth Monitoring and Promotion in Young Children: Guidelines for the Selection of Methods and Training Techniques*. Oxford University Press.

United Nations. 1986. *How to Weigh and Measure Children: Assessing the Nutritional Status of Young Children in Household Surveys*. 1986. New York: National Household Survey Capability Program. United Nations Department of Technical Co-operation for Development and Statistical Office. (E.88.IV.2 92-1-130127-0)

Maternal Nutrition

Baker, Jean, Luann Martin, and Ellen Piwoz. 1996. *The Time to Act: Women's Nutrition and Its Consequences for Child Survival and Reproductive Health in Africa*. Nurture/Center to

Prevent Childhood Malnutrition; Academy for Educational Development. Washington: USAID. (English and French PN-ACA-435)

(Although specifically geared toward African women, the nutritional problems and recommendations are applicable worldwide, especially in Asia.)

This report discusses the need for interventions to improve women's nutrition in sub-Saharan Africa, with a focus on interventions delivered within the context of reproductive health. Following an examination of the health and economic benefits of improved female nutrition, the report identifies key factors affecting women's nutritional status in Africa.

Galloway, Rae, and Allison Cohn, eds. 1995. *Indicators for Reproductive Health Program Evaluation: Final Report of the Subcommittee on Women' Nutrition*. University of North Carolina at Chapel Hill, Carolina Population Center; Tulane University, School of Public Health and Tropical Medicine. Washington: USAID. (PN-ABX-924)

One of the Family Planning Evaluation Project's indicators for program evaluation in five areas of reproductive health interventions. This document presents the project's report on indicators of women's nutrition. The initial section discusses the major threats to women's reproductive health caused by undernutrition and describes the process used by the project to select indicators. The main sections list the key indicators, which are organized in terms of output indicators (covering policy, service outputs, and service utilization) and outcome indicators (both intermediate and long-term).

Vitamin A

Sommer, A. 1995. *Vitamin A Deficiency and its Consequences: A Field Guide to Detection and Control*. Third edition. Geneva: World Health Organization.

A practical guide, to the detection, treatment, and prevention of vitamin A deficiency and its consequences, including associated mortality, infectious morbidity, and xerophthalmia. The guide offers advice on the detection and treatment of subclinical or marginal degrees of deficiency as well as on the emergency management of xerophthalmia and measles. [http://www.who.int/dsa/cat98/nut8.htm#Vitamin A Deficiency and its Consequences])

1997. *Vitamin A Supplements: A Guide to Their Use in the Treatment and Prevention of Vitamin A Deficiency and Xerophthalmia.* Second edition. WHO/UNICEF/IVACG Task Force. Geneva: World Health Organization.

Provides concise, authoritative advice on the use of high-dose vitamin A supplements for the control of vitamin A deficiency and the emergency treatment of xerophthalmia and other conditions in high-risk groups. The guide is addressed to program managers and administrators and aims to answer all practical questions concerning how much vitamin A should be given to different age and population groups, how often, and in what form. [http://www.who.int/dsa/cat98/nut8.htm#Vitamin A Supplements])

Vitamin A Global Initiative. 1998. *A Strategy for Acceleration of Progress in Combating Vitamin A Deficiency. Consensus of an Informal Technical Consultation*, New York, 18–19 December 1997. Available through IVACG and MOST.

This guide is recommended for anyone new to the intervention. It reviews the key points about VA without much detail. It is focused on impact. Can be used also by PVOs interested in presenting data to local or national level authorities. Gives concise information in bullet point format that is easy to read.

Indicators for Assessing Vitamin A Deficiency and Their Application in Monitoring and Evaluating Intervention Programs. WHO/NUT/96.10. Geneva: World Health Organization. (66 pages) (WHO Order no. 1930093)

Addressed to managers of national programs for the prevention and control of micronutrient malnutrition, the document offers advice on the principles governing the use of biological indicators for surveillance, and explains the scientific rationale for each indicator, including its limitations and cutoff points for interpretation in terms of public health significance. This guide includes a country-by-country assessment, categorizing the level of VAD in each. This is a good place for a PVO to begin to determine whether VA interventions are needed in the project area. http://www.who.int/dsa/cat98/nut8.htm#Indicators for Assessing])

Cervinskas, Jenny, and Robin Houston. 1998. *Monitoring Vitamin A programs*. Ottawa, Canada: The Micronutrient Initiative.

This manual provides guidance for program managers on how to monitor vitamin A programs, focusing on process monitoring, rather than on the design of interventions or on impact assessment. The key concepts and major issues related to monitoring are introduced along with a general overview of monitoring methods. Specific frameworks for monitoring supplementation, dietary improvement, and food fortification programs are presented. Information on additional sources of technical support are also included.

Sloan, N., N. Haselow, D. Rosen. 1993. *How To Use the HKI Food Frequency Method To Assess Community Risk of Vitamin A Deficiency*. New York: Helen Keller International. (A new version is forthcoming.)

The manual is proven to be a good predictor of whether or not vitamin A deficiency is a problem of public health significance among pre-school children in a program area. This also has also proven useful for developing nutrition education messages to increase consumption of particular foods. Available from Helen Keller. Helen Keller Worldwide, Helen Keller International (Division) 90 West Street, New York, NY 10006 (212) 766-5266 (212) 791-7590--www.hkworld.org (THIS IS A NEW ADDRESS AND NAME FOR HKI)

WHO and the Micronutrient Initiative. 1998. Safe Vitamin A Dosage during Pregnancy and Lactation: Recommendations and Report of a Consultation. WHO/NUT/98.4. Geneva: World Health Organization. (34 pages). Available in English and French.

This report presents the recommendations of a WHO consultation that was convened to consider both the safe dosage of vitamin A during pregnancy and the first six months postpartum as well as the relevant policy and program implications. The document presents the recommendations of participating experts in nutrition, teratology, reproductive physiology and population-based surveys and will be of particular interest to managers of national vitamin A deficiency prevention and control programs.

WHO. 1998. *Distribution of Vitamin A During National Immunization Days—A Generic Addendum to the Field Guide for Supplementary Activities Aimed at Achieving Polio Eradication.* 1996 revision. Geneva: World Health Organization. (WHO/EPI/GEN/98.06) (26 pages)

This document provides technical information on the distribution of vitamin A supplements to 6 to 59 month-old children during National Immunization Days and is based on the experience of NIDS teams who completed at least one round of vitamin A distribution during 1996-1998. Key points in the planning and implementation process are outlined.

The Vitamin A references listed above are available through the Micronutrient Support Activity (MSA), International Science and Technology Institute, Arlington, VA.

Storms, Doris, and John Quinley, eds. 1988. *A Field Guide for Adding Vitamin A Interventions to PVO Child Survival Projects: Recommendations for Child Survival Project Managers*. Johns Hopkins University, School of Hygiene and Public Health; Institute for International Programs. Washington: USAID. (PN-ABD-810)

This guidebook was produced in the late 1980's by a Special PVO Child Survival Task Force on Vitamin A, but many the key recommendations are still relevant for program planners today. The guidebook provides practical, field-based recommendations for the basic steps to take in assessing the need for action, and then designing, implementing and evaluating various types of intervention programs.

References for Vitamin A

West, K. P. Jr., et al. 1999. BMJ vol. 31-8: 27 (Feb 1999). Johns Hopkins School of Public Health, Division of Nutrition. 410-955-2061.
This study provided low-dose supplements (7,000 ug RE weekly) of VA or beta-carotene to over 20 thousand women and followed over 22 thousand pregnancies in rural Nepal. Results: An overall maternal mortality reduction of 46% was documented. By group, a 40% reduction was shown in the VA and a 49% reduction in the beta-carotene group. Maternal mortality was defined as a pregnancy-related death up to 3 months postpartum.

Sommer, A., and K. West. 1996. *Vitamin A Deficiency: Health, Survival and Vision*. Oxford University Press. 1996

This book is a very comprehensive, yet concise, treatment of over 20 years of vitamin A research. The work which lead to the current knowledge and recommendations regarding VA are examined and summarized. An excellent resource for anyone wanting to understand VA in-depth.

Iodine

Dunn, J. T., and F. van der Haar. 1990. *A Practical Guide to the Correction of Iodine Deficiency*. International Council for the Control of Iodine Deficiency Disorders. WHO/UNICEF. 1990.

Sullivan, K. M., R. Houston, J. Gorstein, et al. 1995. *Monitoring Universal Salt Iodization Programs*. UNICEF/PAMM/MI/ICCIDD/WHO.

Table of contents available at http://www.idrc.ca/mi/salt.htm. To order, contact The Micronutrient Initiative, 250 Albert Street, Ottawa, Ontario, Canada, K1G 3H9. Telephone: 1-613-236-6163 x2482; Fax: 1-613-236-9579. (101pages)

Iron

Foote, Dorothy, and Gardiner Offutt. 1997. *Technical Report on Anemia*. Atlanta: CARE.

This is a new document developed for CARE by the Program Against Micronutrient Malnutrition (PAMM).

Robinette, Donna, Heather Taylor, and Cheryl Stephens. December 1996. *Anemia Detection in Health Services: Guidelines for Program Managers*. Partnership for Appropriate Technology in Health; John Snow, Inc. Washington: USAID. (PN-ACD-217)

Stoltzfus, Rebecca J., and Michele L. Dreyfuss. 1998. *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency Anemia.* Washington: International Nutritional Anemia Consultative Group.

Also available online at http://www.ilsi.org/inacg.html. Search for other publications as well.

Helminth Control

Hall, A., V. Orinda, D. A. P. Bundy, and D. Broun. “Promoting Child Health through Helminth Control—A Way Forward?” *Parasitology Today*, 13. (11), Nov. 1997; pp. 411–13.

Home Gardening

Marsh, R., A. Talukder, and S. Bake. 1993. *Improving Food Security through Home Gardening: A Case Study from Bangladesh*. Helen Keller International; Asian Vegetable Research and Development Center. Washington: USAID. (PD-ABL-454)

Midmore, David J., Vera Ninez, and Ramesh Venkataraman. 1991. *Household Gardening Projects in Asia: Past Experience and Future Directions*. Technical Bulletin No. 19. Asian Vegetable Research and Development Center. Washington: USAID. (PN-ABK-807)

This report summarizes the International Workshop on Household Garden Projects held in Bangkok, Thailand, on 13-15 May 1991, to consolidate lessons learned from experience with household garden projects over the past decade, workshop discussions and recommendations, addresses key issues concerning the role of household garden programs in rural development, and identifies viable implementation strategies drawn from the experiences of the workshop participants.

Internet References

Pan American Health Organization (PAHO). NutriInfo was established by the Food and Nutrition Program to improve access to basic and applied nutrition information in the Americas. This site has links to many other nutrition related sites. http://www.paho.org/english/hpp/hpn.htm

The International Life Sciences institute has a WWW site on nutrition that has Stoltzfus, R. J., and M. L. Dreyfuss. 1998. *Guidelines for the Use of Iron Supplements to Prevent and Treat Iron Deficiency Anemia*. Washington: INAGC. as well as other documents. Address is: http://www.ilsi.org/inacg.html

Breastfeeding Promotion

Breastfeeding is an important cross-cutting component of child survival and maternal health programs. Exclusive breastfeeding (EBF) means giving the infant breastmilk only – no other liquids or solids, except vitamins and mineral drops or medicines. EBF during the early months of life provides the ideal first food for infants, decreases malnutrition, decreases infection from foods and liquids introduced at an early age, confers immunity to disease, and decreases mortality. Suckling immediately after birth may also reduce the risk of death from postpartum bleeding.

Breastfeeding is also a major biological determinant of fertility. Exclusive breastfeeding, especially during the first 6 months postpartum, suppresses ovulation and menstruation, thereby protecting women's iron status and allowing repletion of maternal iron stores. The lactational amenorrhea method (LAM), the use of breastfeeding as a temporary family planning method, encourages the best breastfeeding practices and provides natural protection against pregnancy.

PVOs are encouraged to link breastfeeding and LAM activities with maternal and newborn care, family planning, nutrition/micronutrients, and control of diarrheal diseases. Well-designed breastfeeding programs promote the following important elements:

- Initiating breastfeeding within about 1 hour of birth
- Discouraging the practice of discarding colostrum
- Frequent, on-demand feeding (including night feeds)
- Exclusive breastfeeding until the infant is about 6 months of age
- Using LAM as a transition to other family planning methods
- Introducing appropriate weaning foods to supplement breastfeeding when the infant is around 6 months of age
- Providing sustained breastfeeding until 24 months of age, with gradual rather than abrupt weaning.

Breastfeeding promotion programs should be consistent with national policy and be developed according to the cultural environment of the program area. Constraints to breastfeeding, such as maternal employment and heavy workloads, should be considered when planning a breastfeeding intervention.

Measures to promote behavior change are the basis of breastfeeding promotion programs. However, approaches that are only educational rarely result in changes in behavior. Successful strategies developed in some countries, may be successfully adapted to other areas, such as the use of support groups that encourage mothers in their efforts to overcome obstacles to breastfeeding.

Many women believe they cannot produce sufficient milk to satisfy the nutritional needs of their infants. However, the primary cause of insufficient breastmilk for a normal or an underweight baby is insufficient suckling. In a developing country situation, it is a mistake for health care

providers to tell a poor mother to "eat more" to make more breastmilk. The most important message is that she must suckle more frequently and for longer periods.

Breastfeeding and HIV/AIDS

Although current advice in the United States is that women who test positive should not breastfeed, breastfeeding still should be considered in many situations worldwide. Even if a woman is HIV positive, chances are nearly 2 out of 3 or better that her infant will not become infected. Those children who are denied the benefits of being breastfed may suffer 2-20 times the mortality of their breastfed peers. These risks must be considered in program and policy decisions. Even in countries with the highest levels of HIV infection, the majority of pregnant women remain uninfected. And, even among the HIV+ women, the majority of their infants remain uninfected.

In the majority of countries with BHR/PVC-funded PVO child survival programs, under-five mortality from causes other than AIDS far exceeds AIDS-associated mortality, and safe alternatives to breastfeeding are rarely available. PVOs should assess the situation in their program area, including MOH policy, and make the most appropriate determination regarding this issue.

Lactational Amenorrheic Method

LAM provides natural protection against pregnancy by changing the rate of release of natural hormones, thus preventing ovulation. When used correctly and consistently, LAM is very effective, yielding one pregnancy per 200 women in the first 6 months after childbirth. As commonly used, it is somewhat less effective, resulting in one pregnancy for every 50 women during the first 6 months after childbirth. A woman is naturally protected against pregnancy when

- She is not supplementing regularly, and she breastfeeds her baby often, both day and night
- Her menstrual periods have not returned
- Her baby is less than 6 months old.

If any of these three conditions is not being met, the woman should use another effective family planning method that does not interfere with breastfeeding, and she should keep breastfeeding her baby.

Counseling is an important part of LAM. Health providers should listen to women's concerns, answer their questions, and give clear and practical information about LAM, especially about how to breastfeed properly and when to start a follow-on contraceptive method.

References for Breastfeeding

Coutsoudis, A., P. Kubendran, E. Spooner, and L. Kuhn. “Influence of Infant-feeding Patterns on Early Mother-to-Child Transmission of HIV-1 in Durban, South Africa: A Prospective

Cohort Study." *Lancet* 354 (August 7, 1999). The paper compared transmission rates between exclusively breastfed, mixed-fed, and formula-fed infants to assess whether the feeding pattern is a critical determinant of early mother-to-child transmission of HIV-1. Findings: exclusively breastfed children carried a significantly lower risk of HIV-1 transmission than mixed feeding and a similar risk to no breastfeeding. While this is only one study, it calls into question previously held beliefs about the safety of breastfeeding for HIV infected women.

Internet References

La Leche League. [http://www.lalecheleague.org/]

The World Alliance for Breastfeeding Action (WABA) [http://www.waba.org.br/].

WABA is an international advocacy organization. Its web site includes a link to a LAM information page, including FAQs (Frequently Asked Questions.)

Control of Diarrheal Disease

The goal of this intervention is to reduce diarrhea-associated mortality, morbidity, and malnutrition through care in the home with fluids and dietary management for all diarrhea episodes. Prompt and appropriate assessment, treatment, and counseling by health providers for severe episodes.

Over 2 million children die each year in developing countries from three main types of diarrheal diseases: acute watery diarrhea, dysentery (bloody diarrhea), and persistent diarrhea (diarrhea lasting 14 days or more). Recent reduction in child diarrheal disease mortality rates in developing countries is primarily a result of successful oral rehydration therapy (ORT) for treatment of acute watery diarrhea. As a result, data suggest that currently, approximately 60 percent of child diarrheal disease mortality is attributable to dysentery and persistent diarrhea. Improvement in the rates of use of ORT, while desirable, is unlikely to reduce mortality from these types of diarrhea, which require different or additional treatment and case management interventions.

Although there is clear evidence of the reduction of childhood diarrheal disease mortality rates in recent years, there is no evidence that suggests that there has been a parallel reduction in incidence (morbidity). In addition, there have been considerable data demonstrating that repeated episodes of diarrheal disease significantly increase children's vulnerability to other diseases and malnutrition. These data suggest that to further impact morbidity and mortality related to diarrheal disease, programs must focus on maintaining and increasing use rates for ORT, promoting primary prevention of diarrhea, ensuring proper nutritional management, and addressing the treatment needs of dysentery and persistent diarrhea.

Home Care and Case Management

At the household level, successful programs emphasize:

- The early use of available food-based fluids (except heavily salted soups or very sweet drinks) and/or use of oral rehydration solution (ORS), if available and affordable
- Continued breastfeeding
- Frequent feeding of small amounts of food
- Catch-up feeding following diarrheal episodes
- Recognition of and prompt care-seeking for serious cases, including dysentery and persistent diarrhea
- Promotion of improved personal and household hygiene practices.

Diarrhea case management by health workers includes:

- Determining the duration of the diarrhea
- Determining whether blood is present
- Assessing the severity of dehydration

- Providing appropriate treatment and counseling based on the type of diarrhea and severity of dehydration.

WHO has developed feeding recommendations for children who have persistent diarrhea and advises treating dysentery for 5 days with an oral antibiotic recommended for Shigella. According to current protocols, metronidazole, and other drugs for amoebiasis or giardiasis, are not usually indicated for use in children. Antidiarrheal agents and the inappropriate use of antibiotics should be discouraged as they are can be harmful. The use of home-made salt-sugar solution (SSS) is not recommended for most programs because the correct preparation of SSS at the household level has been found to be difficult, sometimes resulting in dangerously high concentrations of salt in the solution.

There is now substantial evidence that aggressive continuation of feeding during diarrhea, with an emphasis on increased frequency of feeding to eight or more times daily while reducing the amount being fed at each feed, can have a powerful effect on reducing the volume and duration of stooling and the requirement for fluid replacement. In many cultures simple mixtures of starch staples (rice, maize) mixed with legumes (dal, lentils, beans) are acceptable to children sick with diarrhea and have beneficial effects on the course of diarrhea. Interviews with mothers to obtain additional information on attitudes and beliefs about foods and feeding during diarrhea and which actual recommended diets would be acceptable to mothers of diarrheic children help in the design of a message on this topic.

Quality improvement of case management services through training, monitoring, and/or supervising existing public, private, and/or traditional health providers, should be an important component of most diarrhea interventions. Good communication skills on the part of all involved health workers are essential for effective case management interventions. Appropriate clinic organization, good health-worker morale, and adequate supplies are important in sustaining high quality case management services.

Prevention of Diarrhea

Whenever possible, diarrhea interventions should include activities to prevent diarrheal diseases. Control of Diarrheal Disease (CDD) activities to prevent diarrhea may include the promotion of:

1) Effective hand washing at critical times (after defecation, after handling children's feces, before preparing food, and before feeding children)
2) The use of plenty of water for hygiene, and safe storage and use of clean water for drinking
3) Safe disposal of human feces, especially the feces of young children

Construction of water supply or waste disposal systems is beyond the scope of the PVO Child Survival Grants Program. However, if activities are linked to a diarrhea intervention, PVOs are encouraged to utilize matching funds (see below for resources on the implementation of water supply and sanitation projects).

Other preventive interventions, such as breastfeeding, improved weaning practices, and measles immunization are all recommended child survival interventions in their own right and thus

should be considered separately (and, although part of an integrated child survival approach, should be described separately by the PVO, if planned).

Highly Recommended Reference Materials

WHO/UNICEF. 1995. *Integrated Management of Childhood Illness*. Child Health and Development. Geneva: World Health Organization. (WHO/CDR/995.14)

The IMCI charts and manuals for health facility clinicians include revised guidelines for the dietary management of persistent diarrhea, and include only four signs to assess the severity of dehydration. Otherwise, the IMCI algorithm for assessment and treatment of dehydration and dysentery is similar to the algorithm in the CDD materials.

WHO. 1993. *The Management and Prevention of Diarrhoea: Practical Guidelines*. Third edition. Geneva: World Health Organization.

The third edition of a practical guide for teaching health workers how to assess diarrhoea and dehydration, treat cases effectively, and convince community members to adopt preventive practices. Didactic in its approach, the manual uses simple language supported by abundant charts, tables, checklists, and illustrations to help readers absorb information and acquire the full range of essential skills.

Billig, Patricia. June 1999. *Preventing Child Diarrheal Disease—Options for Action*. Environmental Health Project (1611 N. Kent St., Suite 300, Arlington, VA 22209). Tel: 703-247-8730 Fax: 703-243-9004 E-mail: ehp@crosslink.com Home page: http://www.crosslink.net/~ehp

This reference is recommended for directors and managers for programs that seek to prevent child diarrheal disease. This guide provides practical suggestions for programming "primary" prevention interventions—those that improve environmental conditions and change associated behaviors—to halt the exposure to and transmission of diarrheal disease agents. Practical advice is given on steps needed to integrate these interventions with ongoing and planned child health programs along with answers to the following questions:

Other Recommended Reference Materials

WHO. 1994. *The Management of Bloody Diarrhea in Young Children.* Programme for Control of Diarrheal Diseases. Geneva: World Health Organization. (WHO/CDD/94.49) [http://www.who.int/chd/publications/cdd/bloody_d.htm]

WHO. 1993. *Advising Mothers on Management of Diarrhea in the Home: A Guide for Health Workers*. Programme for Control of Diarrheal Diseases. Geneva: World Health Organization. (CDD/93.1) [http://www.who.int/chd/publications/cdd/advising/adv_mom.htm]

WHO. 1993. *Treatment of Diarrheal Diseases: Information for Pharmacists and Other Drug Sellers*. Geneva: World Health Organization. (CDD/93.43) [http://www.who.int/chd/publications/cdd/pharm/intro.htm]

Water Supply and Sanitation

Billig, Patricia, D. Bendahmane, and A. Swindale. June 1999. *Water and Sanitation Indicators Measurement Guide*. Food and Nutrition Technical Assistance Project; Academy for Educational Development. Washington: Academy for Educational Development (1825 Connecticut Ave., NW, Washington, D.C. 20009). Tel: 202-884-8700, Fax: 202-884-8732, E-mail: fanta@aed.org Home Page: http://www.fantaproject.org

This document is targeted to directors and managers of PVO programs with Title II programs. The guide provides specific indicators for monitoring and evaluating USAID Title II water and sanitation activities -- those that improve water supply and sanitation and change associated behaviors -- to halt the exposure to and transmission of diarrheal disease agents.

Internet References/Ordering Documents from WHO

The Environmental Health Project can provide PVOs with examples of PVO- implemented water and sanitation projects and sanitation programming guidelines that emphasize health outcomes, how to involve the community in the design and implementation of the activities and how sustainability will be achieved in terms of cost recovery mechanisms, operations and maintenance.

The Environmental Health Project (EHP). [http://www.crosslink.net/~ehp].

EHP is an excellent source of information on water and sanitation, and diarrheal disease reference materials. The e-mail bulletin board with current journal abstracts is particularly good.

World Health Organization (WHO), Division of Child Health and Development. [http://www.who.int/chd/publications/catalog.htm].

Several of the WHO CDD documents listed above are available on this web site, which also contains an extensive reference list of WHO CDD documents. Instructions for ordering are available on the site. Some of these WHO documents may have been adapted for use in your country by the MOH.

Acute Respiratory Infections (ARI)

ARI: Acute Respiratory Infections (ARI) include common colds, ear infections, sore throats, bronchitis, pneumonia, and several other conditions. The incidence of ARI in children is about the same in developing countries as it is in developed countries, and acute respiratory infections are one of the most common reasons for pediatric consultations at health facilities everywhere in the world. Most acute respiratory infections are viral, mild, and self-limiting. Thus, most children with ARI do not need antibiotics. In fact, the use of antibiotics for common colds and coughs is not only inappropriate and costly, but may also accelerate the emergence of resistant bacteria. Thus, "ARI" is important from the perspective of rational drug use and appropriate case management of children seeking care from health workers.

Pneumonia: The incidence of childhood pneumonia is much higher in developing countries than it is in developed countries,[2] and pneumonia is one of the leading causes of death in infants and children. The vast majority of all ARI-associated deaths in children under five years of age are due to pneumonia. Thus, efforts to reduce mortality should focus on pneumonia, rather than the full range of "ARI."

Prevention: Although there are a number of specific risk factors for pneumonia, the efficacy and feasibility of interventions to address these risk factors have not yet been demonstrated (see discussion at the end of this section). More general preventive child survival interventions, such as measles and pertussis immunization,[3] breastfeeding promotion, and nutrition interventions, may reduce the incidence of pneumonia. However, these interventions, if implemented, should be promoted for their more general benefits in reducing illness and death due to all causes, rather than just as components of a pneumonia intervention.

Prompt and effective treatment: Most childhood pneumonia in developing countries is due to bacteria (mostly *Streptococcus pneumoniae* and *Haemophilus influenzae*). If treatment is started promptly, most cases of pneumonia can be effectively and cheaply treated with oral antibiotics. The problem is how to bring oral antibiotics within reach of all children who need them, and treating the right child, with the right drug, at the right time, while avoiding the use of antibiotics in children who do not need them. To address this problem, the World Health Organization has developed a Standard Case Management (SCM) protocol which enables peripheral health workers to detect childhood pneumonia based on a few clinical signs, without the use of a

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[2] Incidence of pneumonia: The actual incidence of WHO algorithm positive pneumonia is very difficult to measure accurately, and is likely to vary between sites. The Global Burden of Disease and Injury Series (Murray CJL, Lopez AD. Volume II, Global Health Statistics, Harvard University Press, 1996, Table 105) estimates an average incidence of "lower respiratory infection" of 0.45 episodes per infant/child under five years of age per year in developing countries. In most sites with high under-five mortality, the incidence of algorithm positive pneumonia is probably most likely to be in the range of 0.3 to 0.6 episodes per under-five per year. Studies in several developing countries suggest that pneumonia incidence is higher in infants than in children.

(The incidence of algorithm positive pneumonia is likely to be somewhat higher in high altitude sites because childhood respiratory rates increase with altitude. The incidence of x-ray positive pneumonia is likely to be considerably lower in all areas than the incidence of algorithm positive pneumonia.)

[3] Measles and pertussis: Measles and pertussis are two kinds of acute respiratory infections which substantially contribute to under-five mortality and which can be prevented through EPI vaccines. Pneumonia is associated with most measles and pertussis deaths.

stethoscope, chest x-ray, or laboratory facilities. Several studies have demonstrated the feasibility of implementing SCM for pneumonia through peripheral health workers, and have shown that this approach can have a substantial impact on under-five mortality. Because the major impact of pneumonia intervention activities on mortality will be achieved through prompt and effective treatment of pneumonia episodes, rather than through prevention, the only ARI-specific intervention promoted by and included in the PVO Child Survival Grants Program is Pneumonia Case Management (PCM).

PVO CS Programs and Pneumonia Case Management: Although pneumonia is likely to be a leading cause of death in children under five years of age in all areas, the effectiveness of existing pneumonia case management services, and the feasibility and likely effectiveness of PVO-supported PCM activities, should be carefully assessed before a project decides to implement a pneumonia case management intervention. The goal of the PCM intervention is to reduce mortality in children under five years of age by providing Standard Case Management (SCM) early in the illness for a large proportion of all episodes of pneumonia. Therefore, PVOs should implement a Pneumonia Case Management intervention only if all three of the following essential components can be adequately addressed over the course of the program:

Standard Case Management:
1) **Appropriate assessment:** classification, treatment, referral, and counseling for childhood pneumonia by health workers
2) **Adequate access:** adequate access of ill children to SCM
3) **Prompt care seeking**: Prompt recognition of pneumonia signs by caretakers, and prompt care seeking from appropriate health providers.

Standard Case Management

Standard Case Management protocol: WHO guidelines for case management of Acute Respiratory Infections, and for Integrated Management of Childhood Illness (IMCI), include a protocol for:

Assessing a child with cough or difficult breathing,
Classification based on a few clinical signs (including fast breathing and chest indrawing),
Provision of appropriate antibiotics or referral, depending on the classification, and
Counseling of the caretaker.

Requirements for SCM: Standard Case Management means that all health workers who treat ill children, including physicians, follow current WHO or MOH protocols for ARI case management or for IMCI. To do this, health workers need:

Effective training in Standard Case Management,
Effective on-going support and supervision, and
Adequate supplies of appropriate antibiotics.

Appropriate clinic organization and good health worker morale are also important in sustaining quality case management services.

SCM training: Good materials have been developed for assessing case management practices and health facility capacity, and for training health facility clinicians and community health workers in Standard Case Management (see references). Substantial hands-on practice in assessing and treating children and counseling caretakers, conducted with mothers, ill children, and small groups of trainees, should be an important part of all case management training courses. A video to demonstrate chest indrawing is also important because of the difficulty of finding cases of chest indrawing at most training sites.

Fast Breathing: All health workers who assess infants and children for pneumonia require an appropriate timing device to assess for fast breathing. Beeping timers may be available from UNICEF, WHO, or the MOH. Watches with second hands are also fine because a health worker does NOT have to look at both the child and the watch at once to assess for fast breathing.[4]

Malaria and Pneumonia: The overlapping clinical presentation of malaria and pneumonia is an important consideration in all areas with falciparum malaria transmission. Studies conducted in several settings in Africa indicate that almost all children meeting a pneumonia case definition also have fever or a history of fever. In areas with falciparum malaria transmission, treatments for pneumonia alone in children who also have malaria, may result in death from malaria. Thus, in program areas with falciparum malaria transmission, treatment for malaria should be incorporated in the pneumonia case management protocols.[5] (This issue is addressed in several WHO references cited below.)

Counseling about antibiotic use: Failure to feed a correct dose of antibiotics, or complete a course of treatment in children with pneumonia, will increase the risk of treatment failure and the development of antibiotic resistance.[6] Thus, it is important for health workers to provide effective counseling about the use of antibiotics to caretakers. Counseling about when to return to the health worker, continuing to breastfeed, feed fluids and food, and keeping the young infant warm, is also an important part of case management. Good communication skills on the part of all involved health workers are essential for effective case management interventions.

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[4] Watches and fast breathing: Instead of counting the number of breaths in one minute, the worker can determine whether it takes more or less than a minute to reach the cut-off point for fast breathing (60, 50, or 40, depending on the age of the child, and whether the health facility or CHW algorithm is being used). To do this, the worker looks at only the child while counting the number of breaths to the cut-off, and looks back at the watch only after reaching the cut-off, to see whether more or less than a minute has passed.

[5] Pneumonia and malaria: Including malaria in pneumonia protocols is less important in areas where there is only non-falciparum malaria transmission, because, although non-falciparum malaria, and other infections causing high fever, and severe anemia, can also mimic mild pneumonia, miss-diagnosis is less likely to result in the death of the child. However, including case management for pneumonia in protocols for treating malaria is important in all areas where children are treated for malaria. Treatments for malaria alone in children who also have pneumonia may result in death from pneumonia, in any part of the world. Thus, case management for pneumonia should also be incorporated in the malaria protocols at the community, drug retailer, and health facility levels, in all areas (see section of this document on Control of Malaria).

[6] Antimicrobial resistance: The development of antimicrobial resistance amongst organisms responsible for pneumonia represents a major threat to the pneumonia case management strategy. Prior to 1996, WHO recommended national ARI programs to develop a system of surveillance based on collection of nasopharyngeal and invasive isolates of Streptococcus pneumoniae and Haemophilus influenzae for laboratory in vitro sensitivity testing against commonly used antibiotics. However, this approach is no longer recommended because of the poor correlation of in-vitro findings with clinical outcomes, particularly for cotrimoxazole, but also for other antimicrobials. Data on clinical efficacy is now considered more useful for guiding national policy on choice of antibiotics for treating pneumonia (see CHD Interim Programme Report 1996). PVOs should communicate with the MOH to learn what the recommended antibiotic, dosage, and treatment schedules are for pneumonia, and help limit the use of all antibiotics to the minimum necessary level.

Improving case management: Many health workers who have not been trained in SCM, or who fail to receive adequate continuing supervision following their training, use inappropriate or out-of-date methods when managing children with acute respiratory infections. These inappropriate case management practices include: diagnosing pneumonia based on auscultation with a stethoscope or based on the presence of cough with fever, providing antibiotics to children who are unlikely to benefit from them, providing inappropriate drugs to children with ARI, and failing to provide effective counseling about the use of oral antibiotics. Thus, it is important for the program to work with as many of the health providers as possible who currently treat childhood pneumonia in the program site, by first learning about their current case management practices, and then working with providers to improve case management. In many sites, this may mean working with private practitioners and drug sellers. In areas where inpatient care for infants and children is feasible, child survival programs should work with health facilities to improve referral of infants and children with severe pneumonia and the quality of inpatient care.

If SCM is not feasible: If most childhood pneumonia cases in the area will continue to be treated by health providers who follow poor case management practices, or if supplies of appropriate antibiotics are likely to remain inadequate, then PCM may not be a good choice for an intervention to be supported through the child survival program.

Adequate Access

Importance of access: Several studies have documented a substantial decrease in the utilization of health services with increasing distance from health providers. Other studies have found that there is a relationship between distance from a facility and delays in seeking treatment (see Pneumonia Toolbox, Geographic Access module). If care seeking involves substantial costs in time or money, then child caretakers are unlikely to promptly seek care from appropriate health providers after recognizing signs of pneumonia. Caretakers may delay care seeking from trained health workers, and initially use home remedies or near-by untrained providers, and seek care from appropriate health workers only after initial treatment has failed or after signs of more severe disease are recognized. These delays in starting effective treatment for pneumonia will increase the risk of death.

Defining adequate access: Adequate access is defined by some sources as the population able to travel to a health provider in one hour or less, or those living within three to five kilometers of a provider. However, what "adequate access" means should be defined by each child survival program based on a good understanding of local conditions and care seeking practices.

Improving access: If much of the program site population does not have adequate access, then the child survival program should consider alternative strategies for increasing access, such as increasing the availability or reducing the cost of antibiotics, or increasing the number of health workers who can and do provide standard case management services.

Community Health Workers: Antibiotic treatment through community health workers is an appropriate way of increasing access to case management, if this approach is sustainable and approved by the MOH. Several intervention trials involving CHWs in pneumonia treatment and

education of caretakers have documented the feasibility of this approach and have shown that this can have a substantial impact on under-five mortality. Most of these studies were conducted in areas with poor access to case management services at first level health facilities (see references). The successful treatment of childhood pneumonia by CHWs is also likely to increase CHW motivation and credibility. Thus, if child survival interventions are being phased-in over time, it may be a good idea to introduce pneumonia case management early in the life of a project. However, providing quality case management services through large numbers of CHWs may be expensive, difficult to sustain, not very replicable, and unattractive to the MOH. Thus, involving as few CHWs as are required to provide adequate access for the population to case management services, is likely to be the most appropriate approach. PCM algorithms and training materials designed for CHWs (see references) are likely to be more suitable for this level of health worker than those designed for health facility clinicians.

If access will remain poor: If much of the project population does not have adequate access to case management services for pneumonia, and it is not feasible to substantially improve access to SCM over the course of the project, then PCM may not be a good choice for an intervention to be supported through the child survival program.

Prompt Care Seeking

Community-wide education: The focus of widespread communication about pneumonia (or ARI) should be on:

- Prompt recognition of signs of pneumonia by child caretakers,
- Prompt care seeking, and
- Identification of the specific health worker or facility from which care should be sought (and days/times of day care is available).

Older infants and children: Pneumonia-associated deaths in older infants and children may occur within two to four days of the onset of lower respiratory signs. Although most children with signs of pneumonia will recover without treatment, delays in recognition or care seeking from appropriate health providers are important causes of high pneumonia mortality in many areas. Thus, education of household members to recognize the signs of pneumonia and to promptly seek care from specifically identified health workers is an essential component of the PCM intervention. The most important signs of pneumonia in older infants and children are: cough with difficult breathing, and cough with fast breathing. If chest indrawing is locally understood and recognized, then caretakers should also be educated to promptly seek care for any infant or child with this sign of severe pneumonia.

Young infants: Because over 30% of pneumonia-associated deaths in children under five occur within the first two months of life, and because the progression of illness in fatal episodes is likely to be particularly rapid in young infants, it is important for programs to design effective strategies and messages about recognition and care seeking for young infants. Caretakers must be reached before, or within a few days after, the birth of the infant. Because the signs of pneumonia in young infants are different than those in older infants and children, messages about recognition should be designed specifically for this age group. "Stopped feeding well" or

"breastfeeding poorly" is an important sign to teach mothers to seek care for in a young infant (in addition to difficult breathing, and cough or cold with fast breathing). If in-patient care is not feasible, then young infants may be treated at home with oral antibiotics.

Preconditions for education: Community-wide educational activities regarding recognition and care seeking are appropriate only after (or in areas where) the population has adequate access to SCM. Education of caretakers should follow qualitative (ethnographic) investigations of local beliefs, practices, and vocabulary related to pneumonia recognition and care seeking, with regard to both young infants and older infants/children. CHWs may be a good initial source of this kind of information.

Home Care for ARI and Prevention of Pneumonia

How important is home care for ARI? The role and importance of home care in ARI/pneumonia interventions is fundamentally different than in the control of diarrheal disease. In CDD, many cases of dehydration and diarrhea-associated malnutrition can be prevented by the use of home available fluids and proper feeding in the home. Thus, many diarrhea-associated deaths can be prevented in the home without care seeking from health workers. This is NOT the case for pneumonia. There is no convincing evidence that home care for children with upper respiratory infections can prevent pneumonia, or that home care without antibiotics for children with pneumonia can reduce the risk of death. To appropriately treat pneumonia, a caretaker must go outside the home to obtain antibiotics from a health worker.

When should education about home care be given? Counseling about home care (continuing to breastfeed, feed fluids and food, and keeping the young infant warm) is a component of pneumonia case management. WHO case management guidelines include messages about home care for ARI or pneumonia, for health workers to discuss with caretakers after an infant/child has been assessed for pneumonia. Messages about home care need not be a focus of community-wide educational activities, unless specific harmful practices in the community need to be addressed. A risk of focussing on home care for ARI in community-wide educational activities is that this may result in some caretakers delaying care seeking, while hoping that continued home care may cure the pneumonia, especially if seeking and using care from appropriate health providers is time consuming or expensive, as is often the case. PVOs may wish to include messages about continued feeding and fluids for all ill children (rather than for children with ARI) in their community-wide educational activities, in addition to specific messages about pneumonia recognition and care seeking.

What is the role of prevention? For pneumonia, specific interventions to reduce incidence or mortality remain unproven or very expensive. The *Hemophilus influenzae* type b (Hib) vaccine is very effective, but remains too expensive for most child survival program settings. Although there is a lot of evidence of a causal association between indoor smoke and childhood pneumonia, there is no convincing evidence so far that interventions to reduce indoor pollution will reduce either childhood pneumonia incidence or mortality, or that communication for behavior change can reduce exposure to smoke. Thus, the WHO Division of Child Health and Development still considers smoke and pneumonia to be an important research issue, rather than

a focus for intervention activities.[7] More general preventive child survival interventions, such as measles and pertussis immunization, breastfeeding promotion, and nutrition interventions, may reduce the incidence of pneumonia. However, these interventions, if implemented, should be promoted for their more general benefits in reducing illness and death due to all causes, rather than just as components of a pneumonia intervention.

Conclusion: The major impact of pneumonia intervention activities on mortality will be achieved through prompt and effective treatment of pneumonia episodes, rather than through attempts to prevent pneumonia or provide home care for ARI. Thus, the focus of community-wide educational activities about pneumonia (or ARI) should be on prompt recognition of signs of pneumonia, and prompt care seeking, and NOT on home care or prevention.

Highly Recommended Reference Materials

Johns Hopkins University. 1998. *Pneumonia Care Assessment Methods Toolbox*. PVO Child Survival Support Program. (PN-ACF-274)

These materials were designed for PVO child survival programs to assess the quality of pneumonia case management services and local pneumonia related beliefs, practices, and vocabulary. The health facility/worker assessment methods and qualitative/ethnographic approaches described in the toolbox were adapted for use at the program site level from the WHO ARI Programme Health Facility Survey and Focussed Ethnographic Survey.

WHO. 1995. *The Management of Acute Respiratory Infections in Children: Practical Guidelines for Outpatient Care—Case Management Guidelines for Staff Managing Children With ARI in First-level Health Facilities and Their Supervisors*. Geneva: WHO. [http://www.who.int/chd/publications/ari/mgt_ari/ws28095m.htm]

(77 pages)

[7] Smoke and pneumonia: According to the WHO CHD Interim Programme Report 1996, Part II: Family and Community Practices, Section 5. INDOOR AIR POLLUTION: "The review of interventions to prevent pneumonia, reported in 1995, suggested that indoor air pollution was an area in which further information was needed to establish the level of reduction in air pollutants required to achieve a significant impact on pneumonia. Because reducing indoor air pollution might also have benefits in terms of the prevalence of low birth weight, interventions to reduce indoor air pollution could have a significant impact in reducing pneumonia morbidity and mortality in areas where it is a problem. Research on this issue is recognized as a priority by CHD but funds for its support have been limited. Efforts initiated by CDR in 1992 have been continued by CHD in order to obtain the resources required to support the implementation of the required intervention trial in at least one site."

The February 1998 Environmental Health Project report, Indicators for Programs to Prevent Diarrheal Disease, Malaria, and Acute Respiratory Infections, notes: "There is growing evidence that indoor air pollution is an important risk factor for ARI." "An approach to ARI prevention that focuses solely on improved chimneys and stoves and use of cleaner fuel is not sufficient. The kinds of improved chimneys and stoves introduced so far will decrease exposure, but not enough, and in many cases, these interventions have not been sustainable." "Need for Further Study. There is a lack of fundamental information, such as the dose-response relationship between particulate matter and ARI." "Behavior Change. For ARI it is still unclear whether or not behavior changes - particularly of mothers and caretakers - offer opportunity to reduce exposure. For example, does it make sense to encourage mothers to leave their children in another room when they are cooking? The issue of child safety is complicated. Incidence of ARI is highest in the first six months of life. We should not promote behavior changes that would separate mothers and children at a key time in a child's life, especially given the fact that behavior change may be at the margin."

WHO. January 1992. *Outpatient Management of Young Children with ARI: A Four Day Clinical Course*. Programme for Control of ARI. Geneva: World Health Organization. [download in English or French from http://www.who.int/chd/publications/catalog.htm]

A package for training physicians, nurses, nurses' assistants, and other health center staff.

WHO. 1992. *Treating Children with a Cough or Difficult Breathing: A Course for Community Health Workers*. Programme for Control of ARI. Geneva: World Health Organization. [http://www.who.int/chd/publicationslications/ari/chw/cough/cou_chw.htm]

This package includes: An ARI Programme Manager's Guide, A Course Director's Guide, A Teacher's Guide, Learner's Materials, session notes for days 1-4, and a video of pneumonia signs. The simplified algorithm in these documents addresses the overlap in the clinical presentation and treatment of malaria and pneumonia, but is more appropriate for CHWs than the complex ARI or IMCI algorithms for clinicians.

WHO/UNICEF. 1995. *Integrated Management of Childhood Illness*. Child Health and Development. Geneva: World Health Organization. (WHO/CDR/995.14)

The IMCI charts and manuals for health facility clinicians include the same basic algorithm for pneumonia in older infants and children as the WHO ARI documents for outpatient facilities (references listed in this section). However, the IMCI materials include a more complex algorithm for "possible serious bacterial infection" in young infants instead of the simpler more pneumonia-specific algorithm in the ARI documents. The IMCI materials also address the overlap in the clinical presentation and treatment of malaria and pneumonia in more detail, and exclude the management of wheezing. (Order from WHO at http://www.who.int/chd/publications/imci/imcidocs.htm)

April 1997. *PVO Child Survival Technical Report* (5/1). The Johns Hopkins University PVO Child Survival Support Program. (Now available through the Child Survival Technical Support Project, Macro International Inc.). This issue is devoted to ARI/PCM.

Scientific Basis of Pneumonia Case Management

WHO. 1998. *Child Health and Development Programme Report, 1996-1997*. Division of Child Health and Development. Geneva: World Health Organization. [http://www.who.int/chd/publications/ari/malpnu.htm]

CHD publishes a yearly program report every year that reviews important developments in ARI, CDD, and IMCI.

WHO. 1991. *Technical Bases for the WHO Recommendations on the Management of Pneumonia in Children at First-Level Health Facilities*. Geneva: World Health Organization. (WHO/ARI/91.20) (Available in English and French)

WHO. April 1991. *The Overlap in the Clinical Presentation and Treatment of Malaria and Pneumonia in Children: Report of a Meeting*. Programme for Control of ARI; Malaria Prevention and Control. Geneva: World Health Organization. (WHO/ARI/92.23; WHO/MAL/92.1065) [http://www.who.int/chd/publications/ari/malpnu.htm]

Sazawal, S., and R. E. Black. "Meta-Analysis of Intervention Trials on Case-Management of Pneumonia in Community Settings." *Lancet* (1992; 340): 528–33. Focuses on the mortality impact of PCM trials, mostly using CHWs. Includes references for the original papers concerning nine studies in developing countries. A meta-analysis of six published intervention trials.

1988. *Case Management of Acute Respiratory Infections in Children: Intervention Studies. Report of a Meeting*. WHO, 1988 (WHO/ARI/88.2). Similar to document 3: includes more discussion of programmatic issues but excludes recent trials. From the article: "The experience in the studies indicates that Community Health Workers can be trained to responsibly dispense antimicrobials for pneumonia according to a simple classification of ARI." Programme emphasis should therefore be put on rapid access to good case management.

Internet Reference

World Health Organization (WHO). [http://www.who.int/chd/publications/catalog.htm].

In addition to many of the documents listed above, this site also contains an extensive reference list of WHO ARI and IMCI documents, many of which are available in English, French, and Spanish. Ordering information is on the site. Some of these WHO documents may have been adapted for use in your country by the MOH.

☹ REFERENCE MATERIALS THAT ARE NOT RECOMMENDED ☹

UNICEF/WHO/UNESCO/UNFPA. 1993. "Coughs and Colds." *Facts for Life,* 53–59.

This chapter of the book is NOT recommended as a source of messages for parents on pneumonia.

Control of Malaria

Plasmodium falciparum, the parasite responsible for most malaria-associated deaths, affects children in three ways: acute malaria illness; chronic or persistent malaria parasitemia with anemia; and perinatal malaria infection in the mother, which can cause low birth weight and increased infant mortality and potentially increased risk for vertical HIV transmission. Malaria interventions are appropriate for areas where the disease makes a substantial contribution to under-five mortality, either directly or indirectly, as in some areas of South and Southeast Asia, where the disease has an impact on the adult population but the economic burden hurts the entire family. The goal of the malaria intervention is to reduce malaria-associated mortality and morbidity, especially in children and pregnant women. PVOs implementing a malaria intervention may include any or all of the following approaches to malaria control in their programs:

- Improved malaria disease recognition and case management
- Antenatal prevention and treatment of malaria
- Reduction in malaria transmission through the community wide (especially children and pregnant women) use of insecticide-treated mosquito nets especially a provision for regular retreatment of the nets.

Activities that are beyond the scope of the PVO Child Survival Grants Program include large-scale insecticide-spraying operations or environmental engineering measures, and community-wide administration of antimalarial drugs, including mass chemoprophylaxis for children. Environmental measures for manipulating mosquito larva breeding sites have only limited effectiveness in Africa.

Malaria Case Management

Malaria case management (MCM) is an essential component of an effective malaria control program. The requirements for a successful MCM intervention are the same as those for pneumonia case management:

- Quality case management
- Adequate access
- Essential household actions. (These include: a) early recognition and careseeking for episodes of fever, b) completion of a full course of appropriate treatment, c) further careseeking if the child develops signs of severe disease.)
- Providers of antimalarial drugs (including shop owners, drug peddlers, and health personnel) should
- Provide a full course of an appropriate drug
- Provide information on correct drug use, (not overprescribe or sell unnecessary medications)
- Refer children with signs of severe disease to health facilities (in the case of shop owners and drug peddlers, the appropriate role will have to be determined based on the local situation).

Facility-based health personnel should

- Diagnose and treat malaria promptly with an effective antimalarial drug
- Provide supportive care
- Provide treatment of anemia
- Provide effective patient education (to ensure compliance with the full course)
- Refer cases of severe disease, where appropriate.

Chloroquine-resistant strains of *Plasmodium falciparum* are becoming increasingly prevalent throughout Africa. This increase can have a significant impact on mortality, and so resistance status and strategies for alternate drugs should be addressed in case management programs.

The overlapping clinical presentation of malaria and pneumonia is an important consideration in all areas where children are treated for malaria. Epidemiological studies conducted in several settings in Africa indicate that a substantial proportion of children with fever will also meet a pneumonia case definition (cough or difficult breathing, and fast breathing or chest in drawing) and that almost all children meeting a pneumonia case definition also have fever or a history of fever. Treatments for malaria alone may result in death from pneumonia. Thus, *all malaria protocols for children at the level of the community, drug retailer, and health facility should incorporate case management for pneumonia* (unless it is not possible to do so). Alternative strategies for incorporating pneumonia into malaria protocols include:

- Training, supplying, and supervising health providers to assess for and treat pneumonia, as well as malaria (i.e., also doing a pneumonia case management intervention) or
- Training providers to assess for pneumonia (including measuring for fast breathing and looking for chest indrawing in all children with cough or difficult breathing) and referring children with signs of pneumonia for treatment by another provider (which is only appropriate if caretakers have access to quality pneumonia treatment services) or
- Training providers to ask whether a child has cough or difficult breathing in all cases when doing malaria case management and referring all cases of cough or difficult breathing to another provider for assessment for pneumonia (an approach that will result in referring many children, and that is only appropriate if caretakers have access to quality pneumonia case management services).

Antenatal Prevention and Treatment

Antenatal prevention and treatment of malaria may increase birth weights and reduce maternal and fetal morbidity and mortality. There is also newer evidence that placental malaria may increase risk of vertical HIV transmission and that HIV-positive women do not respond as well to malaria prophylaxis. Women who are pregnant for the first time are at greatest risk for complications arising from malaria. They also might not attend antenatal services as frequently as other pregnant women, especially if they are unmarried or very young. If they get chloroquine, compliance is sometimes a problem. In addition, weekly chloroquine prophylaxis is no longer effective in many countries because of the increasing prevalence of chloroquine-resistant strains of *P. falciparum.* Where there is widespread drug resistance, an alternative treatment protocol

should be selected in consultation with the ministry of health. The pattern of drug resistance should be specified for both children and adults. For example, in Malawi the Ministry of Health now recommends the administration of a full course of treatment with sulfadoxine-pyrimethamine (Fansidar) twice during pregnancy.

Insecticide-Treated Materials (ITMs)

Trials of ITMs (especially bednets and to a lesser extent curtains) in east and west Africa have demonstrated that this simple technology can reduce all-cause mortality in 1 to 59- month-old children. The ITM trials were mainly controlled trials in which nets and insecticide were distributed free. How effective ITMs are under conditions of voluntary acquisition and use is less clear. Experience has shown that to be successful, ITM programs must create conditions for sustained public demand for, access to, and appropriate use of affordable nets and insecticides to treat them. Also, sustained insecticide retreatment programs are more difficult to implement than the supply of nets themselves:

Public demand: At present, public demand for bednets and other insecticide-treated materials varies throughout Africa. Mosquitoes are often not recognized as the cause of malaria. Bednets may have high acceptability in many communities as a defense against nuisance bites but not as a malaria prevention. Insecticide treatment of bednets and curtains is the critical point but not yet widely disseminated.

Access: Bednets are generally available only in urban areas, if they are available at all, and no organized public or private systems exist for delivery of public health insecticide services, although there may be systems for agricultural insecticides.

Affordability: In many places, bednets now cost $10 to $25, and insecticide treatments $1 to $2 per year. The typical household may require up to three bednets (which should last 2-4 years), but the initial cash outlay may be beyond the reach of most households.

Appropriate use: ITM programs cannot be successful unless a number of ingrained behavioral and social patterns change. Without such changes, it is unlikely that the right populations will use the nets and have them treated correctly. For example, young children may not have priority for use of bednets within households. To be effective, ITM programs should be designed in accordance with local beliefs and social patterns to encourage ITM use by young children and pregnant women.

More difficult than the provision of nets themselves, but of critical importance, are systems for insecticide re-treatment. Thus, PVOs should consider implementing insecticide-treated mosquito net activities only when it is likely that a sustainable program of net provision and re-treatment can be set up. When nets and insecticide are initially distributed for free, usage may drop dramatically after charges are introduced. There is evidence in Gambia, however, that usage begins to resume after a period of time. PVOs should consider a charge, however nominal, when initiating bednet programs. Nets that are regularly treated with a pyrethroid insecticide have been shown to be far more effective than untreated nets. Therefore, programs should not promote the use of untreated nets. Cotton nets are not suitable for insecticide treatment because the

insecticide is absorbed into the interior of the fiber. In countries where use of untreated mosquito nets is already high, programs may only need to introduce insecticide treatment of nets. If malaria transmission is confined to only part of the year, it may be possible to treat the nets once a year instead of every 6 months.

Recommended General References on Malaria Control

Gilles, Herbert M., and David A. Warrell. December 1993. *Bruce-Chwatt's Essential Malariology*. Third edition. London: Oxford University Press.

Healthlink Worldwide. "Child Health Dialogue." Issue 6. London.

This 16-page issue with a supplement on malaria contains information on prevention, recognition, and management of malaria in young children and pregnant women. CHD is free to readers in developing countries.

Recommended References on Specific Aspects of Malaria Control

Malaria case management in facilities and drug resistance

Redd, S. C., P. N. Kazembe, S. P. Luby, O. Nwanyanwu, A. W. Hightower, C. Ziba, J. J. Wirima, L. Chitsulo, C. Franco, and M. Olivar. 1996. "Clinical Algorithm for Treatment of *Plasmodium Falciparum* Malaria in Children." *Lancet, 347*(96/January 26), 223–27.

This reference brings up important issues for case management: a new case definition for malaria, the issue of overtreatment with the related risk of resistance. To assess this policy and to find out whether a better clinical case definition could be devised, this paper assessed children with fever in two hospital different outpatient departments in Malawi.

Malaria Case Management and Drug Resistance

Bloland, P. B., P. N. Kazembe, and A. J. Oloo. 1998. "Chloroquine in Africa: Critical Assessment and Recommendations for Monitoring and Evaluating Chloroquine Therapy Efficacy in Sub-Saharan Africa." *Tropical Medicine and International Health*, 3(7/July), 543–52.

Makler, M. T., C. J. Palmer, and A. L. Ager. 1998. "A Review of Practical Techniques for the Diagnosis of Malaria." *Annals of Tropical Medicine and Parasitology*, 92(4/June), 419–33.

White, N. J. 1996. "The Treatment of Malaria." *New England Journal of Medicine*, 335(11/September 12), 800–6.

WHO/UNICEF. 1995. *Integrated Management of Childhood Illness*. Child Health and Development. Geneva: World Health Organization. (WHO/CDR/995.14)

The IMCI charts and manuals for health facility clinicians include guidelines for the management of fever in areas of low and high malaria risk, and address the overlap of malaria and pneumonia.

Newton, P. and N. White. 1999. "Malaria: New Developments in Treatment and Prevention." Annual Review of Medicine, 50( ), 179–92. Faculty of Tropical Medicine, Mahidol University, Bangkok, Thailand. <Fnnjw@diamond.mahidol.ac.th>

A review paper for those interested in issues of antimalarial resistance. Discusses new drugs and use of bednets. Explains why vaccine is ultimately needed.

Malaria Case Management in the Home and Community

Beales, P. F. 1997. "Anaemia in malaria control: a practical approach." *Annals of Tropical Medicine and Parasitology,* 91(7/October), 713–18.

McCombie, S. C. 1996. "Treatment seeking for Malaria: A Review of Recent Research." *Social Science and Medicine,* 43(6/September), 933–45.

Ruebush, T. K., M. K. Kern; and C. C. Campbell. 1995. "Self-treatment of Malaria in a Rural Area of Western Kenya." *Bulletin of the World Health Organization,* 73(2), 229–36.

Winch, P. J., A. M. Makemba, and S. R. Kamazima. 1996. "Local Terminology for Febrile Illnesses in Bagamayo District, Tanzania, and Its Impact on the Design of a Community-Based Malaria Control Programme." *Social Science and Medicine,* 42 ( ), 1057–67.

Antenatal Prevention and Control of Malaria

Shulman CE, Dorman EK, Cutts F, Kawuondo K, Bulmer JN, Peshu N, Marsh K, 1999. "Intermittent sulphadoxine-pyrimethamine to prevent severe anaemia secondary to malaria in pregnancy: a randomised placebo-controlled trial." *Lancet* Feb 20;353(9153):632-6 London School of Hygiene and Tropical Medicine, UK. c.shulman@lshtm.ac.uk

This is considered a seminal paper, central to the malaria in pregnancy strategy. The efficacy of intermittent treatment doses of sulphadoxine-pyrimethamine in preventing malaria and severe anaemia in pregnancy in a double-blind placebo-controlled trial among primigravid women was studied. It was concluded that intermittent presumptive treatment with sulphadoxine-pyrimethamine is an effective, practicable strategy to decrease the risk of severe anaemia in primigravidae living in malarious areas.

Nahlen, B. D., et al. 1998. HIV and Malaria overlap and do interact in sub-Saharan Africa Pregnant Women." Abstract, 12th World AIDS Conference (Geneva, Switzerland), June 28–July 3.

Menendez, C., E. Kahigwa, and R. Hirt. 1997. "Randomized Placebo-controlled Trial of Iron Supplementation and Malaria Chemoprophylaxis for Prevention of Severe Anaemia and Malaria in Tanzanian Infants." *Lancet,* 350(9081/September 20), 844–50.

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(Author is affiliated with the CDC in Atlanta, Georgia, 30333. Contact them for the article.)

Steketee, R., and J. Wirima. 1996. "Malaria Prevention in Pregnancy: The Effects of Treatment and Chemoprophylaxis on Placental Malaria Infection, Low Birth Weight, and Fetal Infant and Child Survival." *American Journal of Tropical Medicine and Hygiene,* 55(1, Suppl.), entire volume (16 articles).

Insecticide-Treated Mosquito Nets

Bryce, J., J. B. Roungou, and P. Nguyen-Dinh. 1994. "Evaluation of National Malaria Control Programmes in Africa." *Bulletin of the World Health Organization,* 72(3), 371–81.

Healthlink, Worldwide. 1997. *Insecticide Treated Nets for Malaria Control*. London: Healthlink, Worldwide.

A directory of suppliers of insecticides and mosquito nets for sub-Saharan Africa. Includes practical information on the preparation and use of treated mosquito nets; suppliers of finished nets, bulk netting, insecticides and related products for malaria control; and a list of useful contacts and resource materials. Single copies free of charge. (34 pages)

Mills, A. 1998. "Operational Research on the Economics of Insecticide-treated Mosquito Nets: Lessons of Experience." *Annals of Tropical Medicine and Parasitology*, *92*(4), 435–47.

The following three documents are available from the Malaria Consortium "Converting Expertise and Partnerships Into Operational Realities"; for more information see http://eps.lshtm.ac.uk/~ethestho/MALCON.HTM

Chavasse, D., C. Reed, and K. Attawell. 1999. *Insecticide Treated Net Projects: A Handbook for Managers*. DfID: Malaria Consortium.

Partnerships for Change and Communication. *Guidelines for Malaria Control.* Division of Control of Tropical Diseases, World Health Organization. Developed in collaboration with Malaria Consortium U.K.

November 1996. *Approaches to Malaria Control in Africa - Part 1. Analysis and Opportunities for Malaria Control Support in Selected Countries in Africa—Ghana, Kenya, Malawi, Namibia, Tanzania, Uganda, Zambia, Zimbabwe.* (A Malaria Consortium initiative).

Malaria and Iron Supplementation

Stoltzfus, R., and M. Dreyfuss. 19__. *Guidelines For The Use Of Iron Supplements To Prevent And Treat Iron Deficiency Anemia.* Johns Hopkins University/International Nutritional Anemia Consultative Group. The purpose of these guidelines is to provide practical, scientifically sound guidance to those responsible for planning and implementing anemia control programs. (Refer to nutrition references for ordering details.)

Malaria and GIS

MARA. Mapping Malaria Risk in Africa. http://www.mara.org.za/.

This reference gives a good idea of how GIS can be usefully employed in health care. It contains all the essential components for an understanding of disease determinants and spatial scale.

Internet References

The Environmental Health Project Web site with links to several malaria topics, including bednets: <http://www.crosslink.net/~ehp/webliog.html>. EHP Malaria Bulletins: can be assessed at http://www.crosslink.net/~ehp/products.htm Maternal and Newborn Care. Homepage is: <http://www.crosslink.net/~ehp>

Also, the Malaria Foundation maintains a Web site, <http://www.malaria.org/> with links to the WHO "Roll Back Malaria" project, The Malaria Consortium, and the Asian Collaborative Training Network for Malaria (ACTMalaria), among other entities.

PubMed—National Library of Medicine <http://www4.ncbi.nlm.nih.gov/PubMed/>

WHO/World Bank Malaria Network (many good online documents), http://www.malarianetwork.org

ACTMalaria: (an intercountry initiative between and among Bangladesh, Cambodia, China [Yunnan Province], Indonesia, Lao People's Democratic Republic, Malaysia, Myanmar, Thailand, and Vietnam) <http://www.beebop.com/actmalaria//>

Maternal and Newborn Care

Safe maternal and newborn care is part of a comprehensive child survival program, ensuring that women can go safely through pregnancy and childbirth and have a healthy infant. Between 25 and 33 percent of all deaths among women of reproductive age in developing countries result from complications of pregnancy and childbirth. Eighty five percent of all maternal deaths are caused by five main causes, including postpartum hemorrhage, unsafe abortion, sepsis, pregnancy-induced hypertension disorders (such as pre-eclampsia), and obstructed labor. Indirect causes, such as anemia and malaria account for about 15 percent of maternal deaths.

The health of the mother and infant are intertwined. In developing countries, a mother's death in childbirth means almost certain death for the infant. In addition, poor maternal health directly affects perinatal, neonatal, and infant mortality rates. Almost two thirds of newborn deaths (within the first month of life) are from some type of infection (sepsis, tetanus, pneumonia and diarrhea), while a third of deaths are related to birth trauma and asphyxia during birth. Low birth weight (LBW), which is associated with infant mortality, is directly related to the health of the mother before and during pregnancy.

A combination of social factors, medical causes and systems failures lead to maternal and neonatal mortality and morbidity. Reductions in mortality and morbidity are best achieved through multifaceted programs designed to address these factors, and coordinated efforts of country governments, indigenous NGOs, international NGOs, bilateral and multilateral donor agencies, and the private sector. Community-level programs can significantly contribute to reducing maternal and newborn mortality by focusing their efforts on promoting recognition of complications and prompt referral, birth planning, clean births, postpartum care, and newborn care. When possible, community-level programs should be complemented by improving services at the facility level. For PVO CS programs, each PVO will have to determine its role in preventing maternal and perinatal deaths.

The goal of this CS intervention is to reduce perinatal, and neonatal mortality and improve maternal health. Some elements of MNC may affect maternal mortality but it is difficult to measure. Approaches to improving maternal and newborn care are discussed below. The discussion is divided into four parts: 1) before and during pregnancy, 2) during delivery, 3) postpartum care, and 4) newborn care.

Improving Maternal Care Before and During Pregnancy

Preconception

Several interventions are important to the health of the mother before she becomes pregnant. These include but are not limited to health education and counseling on reproduction, access to child-spacing services, improvement of women’s nutrition, especially addressing anemia and increasing vitamin A stores, identification and treatment of sexually transmitted infections (STI) and reproductive tract infections (RTI), and development of community systems for support of mothers. Because they are interventions in their own right, child-spacing/family planning, nutrition, and STI/HIV interventions are addressed in other chapters of this document.

Prenatal Care

Prenatal care is associated with a better overall pregnancy outcome for both mother and infant. Prenatal care can foster a rapport between the mother and the health care provider, identify and treat illness, provide preventive care and health education, and prepare the mother, other family members, and birth attendants for possible emergencies. Good antenatal care can help prevent factors associated with newborn mortality such as low birth weight, tetanus, and complications from malaria during pregnancy. Major elements of prenatal care are listed below. Where appropriate, other chapters of this technical reference are noted.

- Birth preparedness planning with mother, family, and community, including counseling on recognition of danger signs (bleeding, convulsions, pallor, labored breathing, headache, swollen face, hands and feet, fever) and where, when, and how to obtain referral care
- Screening for danger signs at the antenatal visit
- Early detection and management of pregnancy-related problems such as anemia, pre-eclampsia, STIs, or malaria, or chemoprophylaxis or periodic treatment for malaria in malaria endemic areas (*see Malaria chapter*)
- Provision of preventive care, especially maternal tetanus immunization and iron/folate supplementation (*see Micronutrient section of Nutrition chapter*)
- Promotion of healthy behaviors and social support for behavior change, including: reduced workload, rest, hygiene, nutrition (*see Nutrition chapter*) and iron/folate supplementation and other treatments, and additional care or referral. Benefits of attended birth and safe delivery techniques, immediate and exclusive breastfeeding (*see Breastfeeding chapter*), postpartum child spacing, and reduction in harmful practices
- Community planning and support for routine and emergency communication and transport and promotion of use of maternity waiting homes or other alternative birth locations
- When possible, monitoring of pregnancy progress, including maternal weight gain and hemoglobin status, blood pressure, proteinurea, and fundal height.

Most countries provide routine prenatal care through government health facilities. Utilization rates vary from region to region depending on demand, quality, and access. Depending on the local situation, PVO programs can attempt to increase the utilization of antenatal services through health education to increase demand, by training providers to improve the quality of antenatal service, and by supporting outreach services (or other approaches) to increase access. Projects can provide health education to the community to support the antenatal messages mothers receive in the antenatal clinics. Education can include birth planning, recognition of danger signs during pregnancy, importance of breastfeeding, and nutrition counseling (e.g. reduction of workload). Community health workers can be trained to provide/distribute/market iron tablets to improve maternal nutrition. Other appropriate interventions include supporting transportation systems for complications before, during, and after delivery; developing community health savings and loan programs; developing community blood donation systems, and minimizing harmful practices related to pregnancy.

Prenatal Risk Screening

Most screening programs for risk factors for obstetric emergencies are not able to correctly identify which women need specialized obstetrical services. Most obstetric complications and deaths occur in women who have no risk factors, and most women with the risk factor(s) will not experience an obstetric complication. Ideally, risk screening should address only those few risk factors for which concrete and appropriate interventions are available. For example, screening for hypertension as an indicator of pre-eclampsia is useful in areas where pregnant mothers can be monitored and where appropriate action can be taken. In general, pregnancy-related complications cannot be predicted or prevented but they can be treated. Hence programs should screen as appropriate, given the local situation, and in addition, they should educate all expectant mothers, men, and family members on the danger signs and actions required to access maternal health services if complications arise.

Improving Care During and After Birth

Normal Delivery

Safe, clean childbirth care should be available to all women during delivery, whether in a facility or at home. Clean births can prevent postpartum and neonatal infection. More than 60 percent of births in developing countries occur at home, and 45 percent of those are with *no trained birth attendant*. Therefore, in many areas, it will be important for programs to identify and train persons who are currently providing delivery care (from here on those persons will be referred to as traditional birth attendants (TBAs). TBAs can provide clean births for normal deliveries, and they can provide early recognition and referral of certain complications of childbirth, such as hemorrhage, prolonged labor, infection, and pre-eclampsia in women. TBAs have an important role in childbirth, but they cannot by themselves reduce maternal mortality without appropriate linkages/back-up services to address complications as they arise. Essential care for prevention of maternal and neonatal deaths for deliveries attended by family members and TBAs includes

- Promotion of *the three cleans*: clean hands of the birth attendant; clean cutting of the umbilical cord; clean delivery surface (some sources have an additional three recommendations: clean water and soap, clean string to tie the cord, and clean cloths to wrap the baby. For the mother, some programs use sanitary pads).
- Use of *safe birth kits* with materials for using safe birth techniques.
- Recognition of, and timely, appropriate action for obstetric danger signs such as prolonged labor (over 12 hours), excessive blood loss, fever, chills, discharge, malpresentation, a retained placenta.
- Assessing and discouraging harmful traditional practices.
- Immediate breastfeeding and nipple stimulation.
- Immediate newborn care: immediate warming, drying, stimulation of crying, and ensuring the baby's airway is clear.
- Recognition of, and timely, appropriate action for newborn danger signs – not breathing or inadequate breathing, very pale, labored, fast breathing, >60 breaths per minute, convulsions, poor suckling.

PVOs can provide training in essential childbirth care to those providing delivery services in the project area (nurse/midwives, TBAs). Programs can also educate families and communities about essential childbirth care (especially in areas where mothers deliver in the home) and distribute clean birth materials. Programs can support informing mothers of choices of all positions, procedures, and treatments, and providing services in a women- centered way that maintains a woman's dignity and respects her modesty.

Complications During and After Child Birth

Experts estimate that 15 percent of all pregnant women will develop a life-threatening complication requiring obstetric care. Therefore, in order to reduce maternal (and newborn) mortality, it is essential that programs address issues related to obstetric emergencies. Emergency obstetric care (EmOC) prevents maternal deaths by promptly providing essential care to a woman with an obstetric emergency. The fundamental components of emergency obstetric care are:

- Prompt Care Seeking. Prompt recognition of danger signs and deciding to seek care
- Adequate Access. Access and transport of all women to quality emergency obstetric care
- Obstetric-First Aid. Community health workers and TBAs effectively trained in First Aid and trained and supervised in life-saving skills
- Quality EmOC: Health providers effectively trained and supervised in emergency obstetric care, with adequate facilities, equipment, and supplies.

Prompt Care Seeking

Prompt care seeking involves the mother/family's being able to recognize and understand danger signs and making the decision to act and seek care. Many factors enter into this process including the decision-making processes in the household, traditional beliefs, traditional unattended home birthing practices, low knowledge of causes of death, and poor perception of the health facilities. To improve prompt care seeking for complications, programs can identify the barriers, educate families, and train care providers (nurse/midwives and/or TBAs) to recognize, manage, and/or refer complications. They can counsel mothers about danger signs needing immediate care and the specific facilities that provide that care. This counseling can be done through antenatal care and/or other community channels such as TBAs, community health workers, or health committees.

Adequate Access

Lack of access to emergency care may be due to financial barriers, long traveling times to the closest referral site, and difficulty in obtaining transport. The woman, family, and/or TBA may not know where to go or how to contact a transport worker; transport may not be willing to take the woman; or transportation may be too costly. To assure adequate access of the beneficiary population to quality emergency obstetric care services, program staff can work with

communities to develop a transport/referral system from each community in the project area to a facility providing emergency obstetric care. As mentioned above, PVOs may consider short-term loan programs that can be used to pay for emergency transport. Solutions developed by community members themselves are more appropriate and sustainable, and once a transport/referral system is in place, communities can monitor the functioning of that system. Reducing cultural or religious barriers can also improve access.

Obstetric First Aid in the Community

The principle of obstetric first aid in the community is to provide immediate measures that can stabilize the woman and not inflict harm. If MOH policy permits, and appropriate training is provided, community health workers and TBAs can perform basic life-saving skills such as uterine massage, bimanual compression, ORS, and postpartum nasal/sublingual oxytocics. Health workers and TBAs can be instrumental in organizing communities for transport, and for interfacing with the formal health facilities.

Quality Emergency Obstetric Care

Once a woman has recognized an obstetric danger, made the decision to act, and arranged transport (possibly through a loan), she needs timely, quality service at the facility level to improve her health outcome. The essentials of obstetric care as defined by WHO include

- IV fluids,
- antibiotics,
- anticonvulsants,
- oxytocics,
- manual removal of a retained placenta,
- and assisted vaginal deliveries.

More comprehensive services include blood transfusion, anaesthesia, and caesarean section. To improve quality of emergency obstetric care, programs can collaborate with the MOH in assessing the capacity of facilities to provide emergency obstetric care (providers at designated facilities are adequately trained and supervised, and essential facilities, equipment, drugs and supplies are available, and protocols established) and to cooperate in follow-up actions to correct any identified problems. Where appropriate, PVOs may also train staff to monitor the quality of emergency obstetric care regularly, to ensure that essential systems that support EmOC are operational.

Experience has shown that programs are more successful if community education and mobilization efforts are combined with upgrading the quality of care at the facility level. A balanced approach that involves bringing mothers closer to facilities and facilities closer to the mothers is required.

Improving the Quality of Postpartum Care

The immediate postpartum period lasts from the time the baby is delivered until 2 to 3 hours after the delivery of the placenta. This is a critical time for the onset of postpartum hemorrhage and the mother should be monitored very carefully. Immediate breastfeeding is a key intervention for this period, as well as other interventions aimed at decreasing postpartum hemorrhage.

Following the immediate postpartum period, the next 48 hours are important to rule out the development of postpartum infections, or puerperal sepsis (childbirth fever). Important elements of routine postpartum care include:

- Monitoring of the mother and newborn for 48 hours
- Early detection, referral, and treatment of maternal infection or hemorrhage
- Promotion and provision of family planning
- Breastfeeding support
- Education about hygiene, nutrition, and infant care
- High-dose vitamin A to mothers within the first 8 weeks after delivery (see Micronutrient section)
- Iron/folate therapy in cases of moderate to severe postpartum anemia (see Micronutrient section).
- Ideally, the mother should be monitored closely 1) during the first 48 hours, 2) one week after birth, 3) at three weeks, and 4) at six weeks. Postpartum care does not need to be based in a health facility. In many countries, with appropriate training, nurses, TBAs, and other health workers can provide basic postpartum care at home.

Newborn Care

Common life-threatening problems that occur in LBW babies are hypothermia, infection, and respiratory distress. Another important problem in the newborn period (especially in the first seven days after birth) includes blindness from maternal gonorrhea or chlamydia infection.

Immediate newborn care includes immediate warming, drying, stimulation of crying, ensuring the baby's airway is clear, and prophylactic eye care. Essential newborn postpartum care to prevent mortality during the first week of life includes attention to breathing, BCG and OPV immunization, exclusive and frequent breastfeeding, eyecare, cord care, and keeping the baby warm (including "kangaroo" care for small or premature infants). Programs can educate mothers and families to recognize the following danger signs in neonates and promptly provide and/or seek appropriate care for jaundice, hypothermia, fever, chills, pale blue skin color, inactivity, rigidity, red, swollen eyes with discharge, failure to suck, breathing problems, cord infections, pallor, and low birth weight.

Highly Recommended Reference Materials

Ross, Susan Rae. December 1998. *Promoting Quality Maternal and Newborn Care: A Reference Manual for Program Managers.* Atlanta: CARE. (PN-ACE-295)

This text is an excellent reference guide to anyone who wants to be informed about the issues in maternal health and newborn care. No other text provides such a comprehensive overview; it is especially appropriate for a program manager or health worker new to MNC. The guide explains fully the many factors which contribute to the deaths of mothers and newborns as well as identifying effective interventions and examples of lessons learned in country programs. As the title indicates it is more a reference guide than a guide to program implementation. (Available in English, French and Spanish)

UNICEF. Safe Motherhood Training Package. 1994. *Participants Manual*, Session 5: Addressing the direct causes of maternal mortality, pages 1–32, and *Participants Manual*, Reading 5.1: "Approach to Prevention of Maternal Deaths by Setting," pages 1–10 (a reading excerpted from Koblinsky et. al., 1992, *Programming for Safe Motherhood*, chapter 5, World Bank. Much of the technical guidance in this section comes from this UNICEF training package.

WHO. 1994. *Mother Baby Package: Implementing Safe Motherhood in Countries*. Geneva: World Health Organization. (WHO/FHE/MSM/94.11) (Available in English, Spanish, and French)

This practical guide for the implementation of maternal and newborn care activities includes a broad range of potential maternal care activities (many appropriate for very rural and isolated settings) with corresponding objectives and strategies for achieving the objectives. Includes a complete WHO Safe Motherhood Resource list.

Beck, Diana, Sandra Tebben Buffington, and Jeanne McDermott. 1998. *Healthy Mother and Healthy Newborn Care: A Reference for Caregivers*. American College of Nurse-Midwives; John Snow, Inc. Washington: USAID. (PN-ACF-278)

This document helps midwives learn to provide care by using the Midwifery Problem Solving Process. In the process, the first step is *ask* and *listen* to take the woman's history. The second step is *look* and *feel* in a physical examination to gather more information about the woman and her baby. The third step is to *identify problems/needs*. (Abstract by MotherCare)

Klein, Susan. 1996. A Book for Midwives: *A Handbook for Community Midwives and Traditional Birth Attendants.* London: Macmillan Education Ltd.

Moore, K. M. 1997. *Safer Motherhood, Safer Womanhood: Rethinking Reproductive Health Communication Strategies for the Next Decade.* WHO.

Nachbar, Nancy, Carol Baume, and Anjou Parekh. September 1998. *Assessing Safe Motherhood in the Community: A Guide to Formative Research.* John Snow, Inc. Washington: USAID. (PN-ACD-798)

Tools for Life. Johns Hopkins University Population Communications Services/Academy for Educational Development, supported by USAID. Can be found at http://www.jhuccp.org/tools/

This reference is recommended for PVOs new to MNC intervention. This set of tools has many good ideas for encouraging community participation. The ideas for the activities can be expanded on and applied to many different health communication messages. It is an integrated set of health communication materials for community health workers

working in a number of program areas including safe motherhood. The set includes activity cards and information cards featuring questions and key health messages designed to generate discussion on the various health topics.

Carlough, M. 1999. *Postpartum and Newborn Care, A Self-Study Manual.* Chapel Hill, NC: INTRAH (School of Medicine, University of North Carolina at Chapel Hill, 1700 Airport Road, CB #8100, Chapel Hill, NC 27514, USA. Phone (919) 966 5636. Fax (919) 966 6816. E-mail: intrah@intrah.org)

The target audience for this manual is trainers of traditional birth attendants and other community-level maternal and child health workers. It is geared to those new to the intervention. It is clear, easy to read, and appropriate for the target audience. It was prepared with the help of many excellent background documents. It addresses training the front line providers of maternal health care in many third world countries-TBAs and CHWs. The manual is divided into eight units that address the full range of assessments, counseling and care that should be provided by traditional birth attendants. The information can be integrated into existing training curricula and materials or it can be adapted into additional units for an ongoing program of instruction for TBAs.

Family Centered Maternity Care Training of Trainers Curriculum. Adapted by Mercer, J., P. Glatleider, and A. Bacci. MotherCare.

This curriculum serves as the primary teaching tool for the Ukraine Training of Trainers in Family-Centered Maternity Care. It is also the basis for future training of additional Ukrainian women's health care providers in FCMC. The content was requested by women's health care providers in the Ukraine. The curriculum is for a five day training of trainers in family-centered maternity care. The curriculum is a teaching tool can be adapted to other country settings. It defines care as that which emphasizes the multiple needs of women and uses education and family involvement as major tools for engaging the woman in the process of her own care. It is based on current research which has demonstrated the true effectiveness of maternity care practices.

Turman, T., C. Abouzahr, and M. Koblinsky. 1995. "Reproductive Health: The MotherCare Experience." *International Journal of Gynecology and Obstetrics, 48*(Suppl./June)

This is intended as an advanced reference for policy makers, planners, and implementers of maternal health care programs. MotherCare made a major step toward improving the understanding of public health professionals as to how to implement health programs for women that are responsive to their perceptions and address specific reproductive health problems. This journal supplement chronicles the MotherCare project experience in demonstrating the feasibility of providing a package of effective, appropriate maternal and neonatal health and nutrition services and education to women and their infants in selected developing country settings.

UNICEF, April 1998, "Building Mother-Friendly Societies". New York:.

Health professionals, program managers who work at either the community level and/or in facilities. This approach deals with the woman in a more holistic way—using the life cycle model—and addresses with some of the underlying issues of women's status. In addition, it deals with the community which many references do not address. This approach is new and does not have much field testing. It is appropriate for most levels of health workers and is specific to maternal health care.

Other Recommended Reference Materials

De Sweemer-Ba, Cecile. June 1992. *Mothers and Child Survival: Lessons Learned in Adding Maternal Health Interventions to PVO Child Survival Projects.* Johns Hopkins University, School of Hygiene and Public Health, Institute for International Programs. Washington: USAID. (PN-ABT-062)

This publication includes recommendations from the 1992 PVO Maternal Lessons Learned Conference in Shiprock, New Mexico. (49 pages)

Buffington, Sandra Tebben, and Margaret Ann Marshall. 1998. *Manual for Policy Makers and Trainers*. Field Test Edition. The American College of Nurse-Midwives; John Snow, Inc. Washington: USAID. (PN-ACF-275)

Howard-Grabman, Lisa, Guillermo Seoane, and Cheri Ann Davenport. 1994. *The Warmi Project: A Participatory Approach To Improve Maternal and Neonatal Health, An Implementors Manual.* John Snow, Inc. Washington: USAID. (PN-ABT-103)

Marshall, Margaret Ann, and Sandra Tebben Buffington. 1998. *Life-Saving Skills Manual for Midwives*. 3rd edition. American College of Nurse-Midwives; John Snow, Inc. Washington: USAID. (PN-ACF-276)

Much expanded and thoroughly revised edition includes a Clinical Practical Guide and 10 modules.

WHO. 1996. "Maternity Waiting Homes: A Review of Experiences." Maternal and Newborn Health/Safe Motherhood. Geneva: World Health Organization. (WHO/RHT/MSM/96.21) (Order free copy at http://www.who.int/rht/publications/alphabetical_lis)

WHO. 1994. *Verbal Autopsies for Maternal Deaths*. Report of a WHO Workshop 10-13 January 1994. Maternal and Newborn Health/Safe Motherhood. Geneva: World Health Organization. (WHO/FRH/MSM/95.15)

Murray, J., Adeyi G. Newes, et al. 1997. *Emphasis Behaviors in Maternal and Child Health: Focusing on Caretaker Behaviors to Develop Maternal and Child Health Programs in Communities.*

A Guide to effective care in pregnancy and childbirth. Murray Enkin, Marc J.N.C. Keirse, Mary Renfrew and James Neilson. Second edition, Cr 1995. Oxford University Press Inc, New York, ISBN 019 262324.

This book demonstrates how little evidence there is for many "accepted" practices in maternal and newborn care. This book is a compilation of all the evidence from randomized controlled trails related to care in pregnancy and childbirth. The book reviews the evidence for basic care, screening, care during and after delivery and pregnancy complications. The book includes a synopsis of the evidence of care practices known to be beneficial through to practices where the evidence is uncertain to practices known to be harmful.

World Health Organization Reproductive Health Library (RHL) is published once a year on CD-ROM and disc and is available on a free subscription basis from Mr. Jitendra Khanna, Special Programme of Research, Development and Research Training in Human Reproduction, World Health Organization CH1211, Geneva 27, Switzerland. 00 44 22 791 3380 or 00 44 22 791 4171; khannaj@who.ch

The WHO RHL contains systematic reviews of the current evidence for health care interventions. The database contains the reviews, commentaries on the reviews, and summaries of the effectiveness of the forms of care. It is intended for health care providers, doctors, midwives, and health system managers who want to understand MNC issues on an advanced level.

WHO. 1997. *Basic Newborn Resuscitation: A Practical Guide.* Geneva: WHO.

World Health Organization. June 1995. *Management of the Sick Newborn: A Report of a Technical Working Group.* Ankara: WHO.

World Health Organization. June 1995. *Essential Newborn Care: A Report of a Technical Working Group.* Geneva: WHO.

Internet References

MotherCare home page: http://www.jsi.com/intl/mothercare/home.htm
MotherCare2 home page: http://www.midwife.org/prof/mcare2.htm

Child Spacing

The purpose of the child-spacing intervention is to allow people in the program area to space pregnancies as far apart as they wish and prevent unwanted pregnancies, thereby decreasing maternal and under-five mortality. PVOs are encouraged to work with existing providers in the program area to increase access and improve the quality of services. A quality family planning program comprises the following six key elements (Bruce, 1990):

- Choice of family planning methods (including availability of methods, variety of methods, and ease of referral). Choice refers to the number and range of methods offered. It provides choices for men and women who wish to space, limit, or cease, childbearing.
- Information and counseling given to clients. This element refers to information given during the client visit, which enables clients to choose and use a method satisfactorily. It includes details on the range of methods, advantages and disadvantages, how to use the method selected, possible side effects, and the support clients can expect from the service provider.
- Technical competence (staff skills and training, availability and utilization of service protocols, availability of technical support, and level of hygiene and infection control). The clinical competence of the service provider, extent and adequacy/quality of training and supervision must be addressed.
- Interpersonal relations (client-provider communications, and respect, understanding, and truth shown to client). How clients feel about the attitudes of providers and the service they receive, as well as the competence of service providers in interpersonal relations is critical to continuing utilization.
- Mechanisms to encourage continuity (adequate client follow-up, information about return visits, and positive provider-client relationship). These are included in a program's ability to promote continued contraceptive use.
- Constellation (appropriateness and acceptability) of services (location, timing, privacy, variety, physical facilities, client flow and waiting time, staffing). Services should be convenient and acceptable to clients. Policies and procedures that create barriers to use, such as requirements for frequent revisits and excessive data collection, should be avoided. There is no one, ideal model; appropriateness varies according to the situation.

Regardless of specific program content/activities, it is important from the outset to plan who will be served, how many women, men, or couples, and with approximately what level of effort; all of these factors should be based upon a determination of unmet need in the program area. The unmet need is defined as the proportion of women or couples wishing to regulate their fertility but who are not currently practicing child spacing/family planning. To find the unmet need requires talking to community members and undertaking baseline surveys of how many children potential clients now have, how many they want, current and desired spacing, what they know and do about family planning, and their health and the health of their children. This baseline information is essential in order to establish appropriate targets, set realistic goals and objectives, and establish indicators that can be monitored and measured to identify implementation issues and to determine ultimate success/effects of the program and specific interventions.

To ensure a successful child-spacing program, it is important that contraceptive commodities be available in the right place at the right time and in the right quantities. A well-functioning contraceptive supply system is essential and, if not already established in the program area, must be addressed. Elements of this include:

- Forecasting contraceptive needs
- Maintaining adequate supplies of contraceptives
- Identifying contraceptive suppliers
- Storing contraceptives
- Record keeping for contraceptive supplies.

Appropriate information, education, and communication (IEC) are also essential to a successful child-spacing/family-planning program. Messages can be offered in many venues, including clinics, communities, schools, work places, and meetings. IEC messages communicated through visual, audio, or audiovisual materials, can dispel misinformation, clarify misperceptions and rumors, change negative attitudes, and encourage the use of a method that suits the client's needs. Good IEC does the following:

- Helps increase awareness
- Helps couples exercise their decision-making rights
- Encourages quality improvement and accessibility
- Improves attitudes and beliefs
- Addresses important health behaviors.

For PVOs proposing the actual delivery of child-spacing/family-planning services, two service delivery models to consider are community-based distribution (CBD) and clinic-based services. They can be used alone or in combination, depending on available resources and on community needs. A variation of these two basic service types is the mobile clinic that offers clinic-type services at regular intervals to remote communities. Mobile services can also support community-based distribution by offering a referral point and by resupplying community-based distributors.

Programs should consider targeting those groups most in need of family planning and/or those most likely to use the services. For example, women who have recently had a child and want no more children in the next 2 years, but who are not using modern contraceptives, may be effectively reached through postnatal visits. Men, newly married couples, and adolescents, might be considered as targets for specific IEC and service delivery. However, community mobilization efforts may need to address a large cross-section of the local population to garner interest, support, and commitment, for child spacing/family planning interventions.

In summary, the key points in selecting a child-spacing/family-planning program strategy that defines both the types of services to be offered and how they can be delivered most effectively are:

- Defining the elements of high-quality services (including the importance of counseling and informed choice, together with the need for information, education, and communication, to establish good client interaction)
- Reviewing family planning services - what can be offered, including IEC, counseling, contraceptive method services and referral
- Comparing service delivery models (community-based, clinic-based, mobile services)
- Planning referral and clinical back-up services
- Preparing a sustainable program - technical, financial, and organizational considerations
- Selecting a strategy - reviewing service delivery strategies and deciding upon the best approach for a given context
- Establishing the ability to monitor progress and measure impact.

Highly Recommended Reference Materials

Office of Population. December 1993. *Family Planning Logistics Guidelines*. John Snow, Inc.; U.S. Public Health Service; Centers for Disease Control; Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Washington: USAID. (PN-ABZ-383)

This manual aims to help supervisors, managers, and administrative personnel who work in family planning programs in developing countries to manage contraceptive supplies and analyze logistics problems when they occur. When quality contraceptives are continuously available, a program is better able to reach new clients and retain existing ones. It provides an overview of the various components and objectives of the logistics system, logistics information systems, inventory control, techniques for assessing supply status, and methods of calculating resupply quantities. Warehousing, quality assurance, and logistics evaluation guidelines are also discussed. Where appropriate, suggestions are offered for applying these guidelines at clinic, regional, or central levels. Several chapters in this manual contain forms, examples, and formulas that can be photocopied for local use or quick reference. Although this manual is primarily designed as a general reference guide, it may also be used as a resource document for training.

Blumenthal, Paul D., Noel McIntosh, and Elizabeth Oliveras, eds. 1996. *Pocket Guide for Family Planning Service Providers, 1996-1998.* 2nd ed. JHPIEGO Corp. Washington: USAID. (PN-ABY-824; Russian PN-ABZ-635; Earlier ed. PN-ABW-685)

Hatcher, Robert A., Ward Rinehart, and Richard Blackburn. 1997. The Essentials of Contraceptive Technology. Center for Communication Programs, Johns Hopkins University. Washington: USAID. (PN-ACF-548).

Lyons, Joyce V., and Jenny A. Huddart. 1997. *Integrating Reproductive Health Into NGO Programs, volume 1: Family Planning*. 2nd ed. Initiatives, Inc.; John Snow, Inc. Washington: USAID. (PN-ACA-882)

Miller, E. R., B. Shane and E. Murphy. 1998. *Contraceptive Safety, Rumors and Realities*, Population Reference Bureau and World Health Organization.

Miller, K, M. Gorosh, M. Ojermark, P. Wondergem, and V. Hight-Laukaran. 1999. Family Planning Program Monitoring and Evaluation System (FPPMES). SEATS Project, John Snow, Inc.

Shane, Barbara. 1997. *Family Planning Saves Lives*. Washington: Population Reference Bureau.

Sherris, Jacqueline, ed. 1995. "Family Planning Counseling: Meeting Individual Client Needs." *Outlook*, 12(1/May) [http://www.path.org/outlook/html/13_1_fea.htm]

Robey, Bryant, Phyllis Tilson Piotrow, and Cynthia Salter. August 1994. *Family Planning Lessons and Challenges: Making Programs Work*. Johns Hopkins University, Population Communication Services, Population Information Program. Washington: USAID. (PN-ACA-541)

Other Recommended Reference Materials

Bertrand, Jane T., Robert J. Magnani, and James C. Knowles. 1994. *Handbook of Indicators for Family Planning Program Evaluation*. University of North Carolina at Chapel Hill, Carolina Population Center; Futures Group International; Tulane University. Washington: USAID. (PN-ABS-028)

A comprehensive listing of the most widely used indicators for evaluating family planning programs in developing countries is presented in this handbook. The indicators, which number just over 100, are organized according to the conceptual framework developed under USAID's Family Planning Evaluation project, which maps the pathways through which programs achieve results at both the program and people levels and thus provides a logical framework for developing an evaluation plan.

Day, Laurence M. 1993. *Designing a Family Planning User Fee System: A Handbook for Managers*. John Snow, Inc. Washington: USAID. (PN-ABQ-405; Spanish PN-ABQ-407; French PN-ABQ-406)

Epstein, Eve E. November 1986. *Assessing Your Organizational Assets: A Manual for Managers of Private Voluntary Organizations Involved in Family Planning*. John Snow, Inc.; Birch and Davis Associates, Inc.; Coverdale Organization, Inc.; John Short and Associates, Inc. Washington: USAID. (PN-ABD-475; Spanish PN-ABJ- 946; French PN-ABK-541)

Huddart, Jenny A. 1993. *HIV/AIDS Project Planning Manual for NGOs*. Initiatives, Inc., and UNDP HIV/AIDS Regional Project for Asia and the Pacific.

Ippolito, Linda, Nancy Pendarvis Harris, and Don Lauro. July 1996. *SEATS II: Strategy for Quality of Care in Family Planning and Reproductive Health.* John Snow, Inc. Washington: USAID. (PN-ABZ-381) (Appendix A, "Suggested Tools and Resource Guide for Quality of Care," is especially recommended.)

This document presents SEATS' Quality of Care (QOC) strategy and includes: the intellectual framework for quality within which SEATS has made decisions concerning quality assessment and improvement; the essential elements of the SEATS approach to quality; practical examples of successful quality initiatives from SEATS experiences and other sources; recommended tools and resources to improve quality at various levels; and illustrative indicators to measure the outcome and impact of quality improvement efforts. (71 pages plus 3 appendices)

Mauldin, W. P., and S. W. Sinding. 1993. *Review of Existing Family Planning Policies and Programs: Lessons Learned*. New York: Population Council.

The lessons learned from decades of experience with family planning programs in Asia, Africa, Latin America, and the Middle East have centered on the following key factors: political commitment, leadership, administrative structure, civil bureaucracy, contraceptive availability, modes of service delivery, community-based distribution and social marketing, experimental and demonstration studies, nongovernmental organizations, incentives, IEC, and costs. Although academic arguments have focused on the relative impact of family planning versus socioeconomic development on fertility decline, research has unequivocally confirmed that both contributed to fertility decline. (49 pages)

Office of Population. 1995. *Family Planning Counseling: A Curriculum Prototype (Participants Handbook)*. Association for Voluntary Surgical Contraception. Washington: USAID. (PN-ABW-104) (79 pages)

Wolff, James A., Linda J. Suttenfield, and Susanna C. Binzen, eds. 1991. *Family Planning Managers' Handbook: Basic Skills and Tools for Managing Family Planning Programs*. Management Sciences for Health. Washington: USAID. (PN-ABI-148; French PN-ABX-896) (374 pages)

Wolff, James A., and Robert Cushman, Jr. 1990. *Beyond the Clinic Walls: Case Studies in Community Based Distribution*. Management Sciences for Health. Washington: USAID. (PN-ABG-982)

Community-based distribution (CBD) programs reach beyond clinics to provide contraceptives in communities where people live. This book contains a series of case

studies which depict the management issues involved in designing and implementing a new CDB program.

Bertrand, J. T., R. J. Magnani, and N. Rutenberg. 1996. *Evaluating Family Planning Programs.* The EVALUATION Project. 103 pp., see reference for ordering information. [Original source: P. H. Rossi and H. Freeman. 1993. *Evaluation: A Systematic Approach*. Newbury Park, CA: Sage Publications.]

Bertrand, J. T., A. Tsui. 1995. *Indicators for Reproductive Health Program Evaluation*. The EVALUATION Project. University of North Carolina at Chapel Hill, Carolina Population Center; Tulane University, Department of International Health; The Futures Group International. 40 pp.

Samara, R., B. Buckner, A. Tsui. 1996. *Understanding How Family Planning Programs Work: Findings of Five Years of Evaluation Research.* The Evaluation Project. See ordering information at reference 3.

Internet References

Among many potentially useful websites to explore are the following:

- http://www.conrad.org/general.html—for General Contraceptive Information, and a guide to additional sources of specific information

- http://www.rho.org—PATH's Reproductive Health Outlook

- http:// www.msh.org—Management Sciences for Health (MSH) Electronic Resource Center

- http:// www.juhccp.org—The Johns Hopkins University Center for Communication Programs (JHU/CCP) (It is highly recommended that PVOs with family planning projects subscribe to “Population Reports,” a series by JHU.)

STI/HIV/AIDS Prevention

The goal of the STI/HIV/AIDS intervention is to prevent the transmission of HIV infection in the target population, and to improve child survival outcomes in areas heavily affected by HIV/AIDS. Important strategies that can be pursued by PVOs include reducing sexual risk through behavior change communication; increasing access to and demand for condoms, possibly through social marketing; and treating and controlling sexually transmitted infections. PVOs may also consider developing and promoting basic care and support services for those living with HIV and AIDS.

This intervention is most appropriate for PVO child survival programs in areas with a high prevalence of STIs, and/or a rapidly increasing prevalence of HIV infection. HIV/AIDS activities are more likely to be successful if program staff include those with prior experience with this work, and if the PVO has earned the trust and confidence of the community in a well-established health or child survival program.

Proposing a relatively small effort (for example, less than 15 to 20 percent of a child survival program budget) for a complex new activity such as HIV/AIDS is usually only recommended if activities are linked with other related efforts, if the program has strong community and political support, and if the program does not overtax staff and resources committed to other proposed program interventions.

Behavior Change Communication

Important strategies for behavior change include developing and teaching locally appropriate strategies for negotiating risk reduction with sexual partners and increasing skills of program beneficiaries to use condoms and/or negotiate other forms of "safer sex." Changing attitudes is often the first step to long term, sustainable behavior change. Initially, it is often necessary to destigmatize and promote the dignity and human rights of women and children with HIV/AIDS. Targeting increases in knowledge usually is only justifiable if local studies have shown low levels of understanding of the basic facts about HIV/AIDS. More often, knowledge of the facts is adequate, but motivation, skills, and resources to change high-risk behavior and situations are needed. The behavior change intervention should have well-defined audiences, include participation of these audiences in planning, implementing, and evaluating HIV/AIDS activities, and collaborate with local counterparts.

Increasing Demand and Access to Condoms

An essential element of most HIV/AIDS interventions will be to ensure that a reliable, low-cost supply of quality condoms is available to the target population. Social marketing (the use of marketing techniques and systems to promote and deliver methods of protecting public health) can be a very effective way to create demand for and access to condoms. The basic approach involves packaging, pricing, and presenting the condom and its use to appeal to the target market and to engage the participation of wholesalers and retailers in distribution and in conventional trade promotions. The advantages of a social marketing approach to promoting condoms for HIV/AIDS prevention include the ability to make products available to people when and where they need them and to saturate geographic areas of special interests with a product. It may not be necessary to mount an extensive social marketing project within a child survival program,

however, care should be taken to ensure condoms are available if the program promotes condom use. This often means extending condom sales beyond pharmacies and supermarkets to nontraditional outlets such as bars, brothels, liquor stores, and roadside stands.

STI Treatment

Because of the importance of STIs in the transmission of HIV, and the contribution of STIs to perinatal mortality, PVOs may consider including activities to interrupt the transmission of STIs. Where possible, antenatal and family planning services could incorporate STI screening and treatment, or provide appropriate referrals where such services already exist. Promotion of care-seeking for STI symptoms could be encouraged as part of a behavior change communication activity. The syndromic approach, a relatively quick and effective way to diagnose and treat STIs in men, should be considered. When combined with improved drug supply, and with the "five C's of quality care" (confidentiality, condom supply, counseling, compliance with treatment, and contact tracing), the syndromic approach can make STI services more widely available through primary care clinics. It may also be appropriate to carry out or to support referral for HIV/STI informed voluntary counseling and testing.

Mother-to-Child Transmission (MTCT)

In developing countries, HIV positive pregnant women have a 25-35% risk of transmitting the virus to their children during pregnancy, delivery, or breastfeeding. Prevention of MTCT is complicated by resource constraints, inadequate health care infrastructure, and community attitudes which may prevent individuals from wanting to know their HIV status. Traditional methods of reducing MTCT of HIV are primary prevention of adult HIV transmission, increasing use of family planning services in communities with high HIV prevalence, and community mobilization to reduce stigma and increase demand for HIV/STI testing.

Other possible interventions to reduce MTCT include voluntary counseling and testing services to allow families to make informed decisions about sexual relations, pregnancy, and care-seeking, encouraging short-term breastfeeding or replacement feeding of infants born to women known to be HIV-positive, where replacement feeding is available and safe to use, and short-course AZT therapy for pregnant women known to be HIV positive. However, such interventions are costly and require sites to have good basic health infrastructure and efficient referral systems already in place. In addition, replacement feeding and AZT therapy are largely untested in developing countries in non-research settings and carry risks (some of which are not yet known) for the women and children it is intended to help.

Research is currently underway to determine efficacy and feasibility of new interventions, such as the use of nevirapine and vitamin A supplementation during pregnancy, and modifications of obstetrical practices during labor.

Community-Based Responses:

Within a child survival program, it is possible to implement activities designed to improve child survival outcomes in households and communities affected by HIV/AIDS. Key issues affecting child survival in such households and communities include care for infants and children

orphaned due to AIDS and food security in households and communities facing loss of labor and income due to HIV/AIDS. Even when HIV/AIDS activities are not planned as part of a child survival project, PVOs working in areas affected by HIV/AIDS should ensure that nutrition, immunization, and other child survival interventions are accessible to orphaned children and households isolated due to HIV/AIDS. PVO activities could support communities in their efforts to respond to HIV/AIDS through the following illustrative activities: community needs assessments, monitoring of vulnerable children and families, home care of orphans and HIV patients, family counseling and health education, support groups for families and infected individuals, improvement of nutrition and food-security, and advocacy to promote the rights of individuals with HIV/AIDS. Such activities are most successful when communities participate fully in decision making and take responsibility for project successes and failures.

Highly Recommended Reference Materials

Calderó, M. Ricardo, ed. November 1997. *HIV/AIDS Prevention and Control Synopsis Series*. Family Health International. Washington: USAID

The Series includes 8 booklets; each covers a separate topic:
Behavioral Research (PN-ACF-551)
Capacity Building (PN-ACF-556)
Civil-Military Collaboration (PN-ACF-553)
The HIV/AIDS Multidimensional Model (PN-ACF-555)
Regional Accomplishments and Lessons Learned (PN-ACF-554)
Religious-Based Initiatives (PN-ACF-550)
STD Syndromic Management (PN-ACF-552)
Gender-Sensitive Initiatives (PN-ACF-557)

Dallabetta, Gina, Marie Laga, and Peter Lamptey, eds. 1996. *Control of Sexually Transmitted Diseases: A Handbook for the Design and Management of Programs*. Family Health International. Washington: USAID. (PN-ABZ-468)

This handbook presents a comprehensive and integrated approach to the design and management of programs for control of sexually transmitted diseases (STDs), particularly those programs operating under financial constraints. It addresses the full spectrum of issues that STD managers at national and local levels must consider, including (1) program management (e.g., integration with the health care system, communication strategies for promoting behavioral change, promotion of condoms, training in the management of STD programs, and STD drugs); (2) case management (e.g., syndrome management, STDs and pregnancy, patient education, partner management, and laboratory support); and (3) supporting strategies (e.g., innovative approaches suggested by health workers with extensive field experience, program monitoring and evaluation, and surveillance). Includes chapter references. (61 pages) (Abstract taken from USAID DEXS database)

Lande, Robert. June 1993. "Controlling Sexually Transmitted Diseases." *Population Reports* Series L (9). Johns Hopkins University Center for Communication Programs. [http://www.jhuccp.org/pr/l9edsum.stm]

Mercer, Mary Anne, and Monique Munz, eds. June 1995. *Guide for Including HIV/AIDS Prevention in PVO Child Survival Projects: Recommendations for Child Survival Managers*. Johns Hopkins University, School of Hygiene and Public Health, Department of International Health. Washington: USAID. (PN-ABX-111)

This report provides practical guidance to PVOs wishing to include HIV/AIDS prevention activities in their child survival (CS) projects. The guidelines respond to four questions raised by PVOs in this context: How are HIV/AIDS and CS interventions similar and how are they different? How should we decide whether or not to include an intervention for HIV/AIDS prevention in our CS project? How should we decide the basic strategies and the community groups to include in an HIV/AIDS prevention intervention? What indicators provide the most useful measures of the success of HIV/AIDS prevention activities?

Gilkes, Charles et al. Sexual Health and Health Care: Care and Support for People with HIV/AIDS in Resource-Poor Settings. Health and Population Occasional Paper. Department for International Development, 1998. Available from International Family Health Sexual Health Consultancy, Parchment House, 13 Northburgh St., London EC1V OAH. E-mail: info@ifh.org.uk.

Scientific Reference for HIV/AIDS/STIs

Coutsoudis, A., P. Kubendran, E. Spooner, and L. Kuhn. 1999. "Influence Of Infant-Feeding Patterns On Early Mother-To-Child Transmission Of HIV-1 In Durban, South Africa: A Prospective Cohort Study." *Lancet, 354*(August 7).

The paper compared transmission rates between exclusively breastfed, mixed-fed, and formula-fed infants to assess whether the feeding pattern is a critical determinant of early mother-to-child transmission of HIV-1. **Findings: exclusively breastfed children carried a significantly lower risk of HIV-1 transmission than mixed feeding and a similar risk to no breastfeeding.** While this is only *one study*, it calls into question previously held beliefs about the safety of breastfeeding for HIV infected women.

Wynendfaele, B., W. Bomba, W. M'Manga, S. Bhart, and L. Fransen. 1995. "Impact Of Counseling On Safer Sex And STD Occurrence Among STD Patients In Malawi." International Journal of STD and AIDS, 6(2/March–April), 105–9.

This study assesses the impact of counseling on STD treatment and prevention in Malawi. A pre-test and post-test control group design over 4-month interval was conducted in 1991 in 2 comparable hospitals. **The results show that counseling reduces the occurrence of STDs.**

Other Recommended Reference Materials

Lamptey, Peter, Peter Piot, and Robert Gringle, eds. 1990. *Handbook for AIDS Prevention in Africa*. Family Health International. Washington: USAID. (PN-ABU-359)

(238 pages)

Office of Health and Nutrition. N.d. AIDSCAP: *How To Conduct Effective Pretests—Ensuring Meaningful Behavior Change Communication (BCC) Messages and Materials.* Family Health International. Washington: USAID. (PN-ABZ-463)

(41 pages plus 2 appendices)

Office of Health and Nutrition. N.d. AIDSCAP: *How To Create An Effective Communication Project—Using The AIDSCAP Strategy To Develop Successful Behavior Change Interventions*. Family Health International. Washington: USAID. (PN-ABZ-467)

(61 pages)

Office of Health and Nutrition. N.d. *AIDSCAP: [Instrument for] Assessment and Monitoring of Behavior Change Communication (BCC) Interventions: Reviewing the Effectiveness of BCC Interventions.* Family Health International. Washington: USAID. (PN-ABZ-466)

(31 pages)

Calderón, M. Ricardo, ed. November 1997. *HIV/AIDS Prevention and Control Synopsis Series*. Family Health International. Washington: USAID.

Internet References

UNAIDS. [http://www.unaids.org/].

This site has links to many other HIV/AIDS web sites. This site also has several key documents on mother to child transmission, prevention and care for children and adolescents, infant feeding issues, regional case studies and best practices, and prevention and treatment of STIs.

AIDS Education Global Information System (AEGIS). [http://www.aegis.com/]

Billed as the largest AIDS database in the world, AEGIS has searchable databases, links to other resources, and current news about HIV/AIDS.

Monitoring and Evaluation

An essential component of any health program is monitoring and evaluation (M&E)-collecting and analyzing health information on program performance that is accurate and reliable and can be put to practical use. Monitoring and evaluation elements in the PVO child survival context include baseline assessments, setting program goals and objectives, a plan to monitor progress towards meeting program objectives, and the midterm and final evaluations. BHR/PVC's evaluation policies reflect a commitment to a set of core evaluation practices that over the years have proved to be critical elements in building PVO capacity to monitor and evaluate field programs. These practices have emerged through lessons learned from the programs implemented by our PVO partners.

- **Evaluations are joint activities** and truly effective learning experiences involve all the partners. BHR/PVC, the PVOs, their local partners, and other stakeholders usually participate in program evaluations. The participatory nature of the evaluation process encourages problem analysis and development of solutions by project staff and partners.
- **Good program design** is the foundation for documenting achievements. Programs that have successfully documented their achievements have clearly stated objectives, valid indicators and a realistic method for measuring change over the life of the program. The establishment of accurate baseline data is a critical element in tracking change.
- **Commitment to the use of data** contributes to the most successful programs. Such projects demonstrate strong staff commitment to action planning based on the regular review of performance data.
- **All good evaluations recognize the achievements** of the project and staff and document innovative activities highlighting promising practices or new approaches.

This section briefly discusses each element of M&E and provides references that PVOs may utilize in designing their M&E plans.

Baseline Assessments: Baseline assessments are used to focus the program on the site's priority health needs, help the program design effective strategies to deliver child survival services and support existing health activities, and set measurable objectives. Baseline assessments should collect baseline information for all major planned activities so that progress over time may be measured. Types of data collected include local knowledge and practices related to the program; quality, coverage, and needs of existing health facility/worker services; local partner capability; and sustainability. Quantitative and/or qualitative/ethnographic methods may be used to collect baseline measures. PVOs may choose to use relevant sections of the Knowledge, Practice, and Coverage (KPC) Survey[8] to collect quantitative survey information. They may also use other types of surveys.

[8] The KPC Survey is the standard Knowledge, Practice, and Coverage Survey developed by the Johns Hopkins University PVO Child Survival Support Program under contract with USAID/BHR/PVC. It is now available through the new Child Survival Technical Support Project.

BHR/PVC-funded programs are planned with local partners, and most programs devote extensive resources to building the capacity of their host country partners, both ministries of health and local non-governmental organizations (NGOs). Thus, PVC encourages PVOs to conduct institutional assessments and to develop objectives to measure capacity-building. The assessment can provide a baseline for institutional change, help inform program interventions, and form the basis for a strategy/plan for capacity building and sustainability. The institutional assessment and capacity building strategy can be linked to the program's plan for sustainability.

Developing Objectives and Indicators: In the DIP Guidelines, PVOs are asked to state the program's goals, objectives, the indicators proposed for measuring achievements for each objective, and major activities planned under each objective. In the past, many PVOs have used a matrix to graphically display the program goals and objectives, and a composite chart is presented below. PVC recognizes that there are many options for displaying program goals and objectives, and while the chart is an example, it is not meant to be prescriptive; PVOs may use any form they choose.

EXAMPLE OF MATRIX TO DISPLAY PROGRAM GOALS AND OBJECTIVES

Goal:_____

OBJECTIVES	INDICATOR	MEASUREMENT METHOD	MAJOR PLANNED ACTIVITIES
* Objective 1	* indicator * indicator * indicator	* measurement method	* activity * activity
* Objective 2	* indicator * indicator	* measurement method	* activity * activity
* Objective 3	* indicator * indicator	* measurement method	* activity * activity

Goal: This is a statement of the long-term aim of the project. While the complete fulfillment of a goal may not be possible or verifiable within the life span of the project, the achievement of the project's more specific objectives should contribute to the realization of the goal.

Objective: An objective is a statement of what the program plans to achieve during the life of the project. This achievement is the highest level result that a program can materially effect with its efforts. Objectives should be clear, precise, objectively measurable, and plausibly linked to the program goal. Objectives can be stated in terms of changed individual behavior (e.g., increase in percent of mothers who recognize danger signs and seek care for pneumonia) or a change in an organization's behavior (e.g. ministry of health capacity to deliver antenatal services increased). Some PVOs may choose to have different levels of objectives, such as sub-objectives. PVC encourages PVOs to develop a concise, manageable set of objectives.

Indicator: Indicators are used to describe how well a program is achieving its objectives. Objective indicators are unidimensional, precise quantitative where probable and consistent over time. An indicator also specifies what to measure to determine whether the objective has been achieved.

Measurement Method: The measurement method should identify the source of the data. (e.g. initial and final KPC Survey). The details of data collection can be further expanded upon in the monitoring and evaluation plan.

Activities: Activities support the achievement of the objective. These include inputs and processes carried out by the program.

Monitoring and Evaluation Plan: A monitoring plan specifies the actions to be taken for collecting and using data to monitor program progress. The monitoring plan provides information for each indicator on 1) its definition, 2) the source, method, frequency and schedule of data collection, and 3) the entity responsible for collecting the data. A monitoring plan can also specify how the data will be analyzed and how it will be reported, reviewed, and used to inform program management. Previously in the DIP Guidelines, the monitoring and evaluation plan was referred to as the Health Management Information System (HMIS).

The monitoring and evaluation plan should also specify program targets. A final target is the planned value of a performance indicator at the end of the program. In addition to the end target, it is often useful to set up midterm targets or annual benchmarks to see how the project is progressing. Targets may be qualitative or quantitative, depending on the nature of their indicators. While targets for quantitative indicators will be numerical, targets for qualitative measures will be descriptive.

PVOs are encouraged to use MOH data or other available data whenever possible and to collect the minimum data necessary to track objectives. Although some PVOs may wish to collect information on the social and project-related reasons associated with under-five and/or maternal deaths in order to improve their project and further reduce mortality, BHR/PVC does not recommend that PVOs attempt to track vital events for the purpose of demonstrating the mortality impact of child survival (CS) activities.

The midterm evaluation is a formative evaluation serving as a way to assess how project activities are progressing and to reorient activities and change project targets, if necessary. Some PVOs repeat baseline assessments, but this is not a PVC requirement. The midterm evaluation usually occurs after the first 2 years of program implementation.

The final evaluation is an opportunity to assess whether the project met its goals and objectives, to assess the effectiveness of implementation strategies, to document lessons learned, and, in some cases, to contribute to the design of a follow-on project.

Highly Recommended Reference Materials

Monitoring and Evaluation General

Center for Development Information and Evaluation. "Performance Monitoring and Evaluation TIPS. Washington: USAID. [http://www.dec.org/usaid_eval/#004]
TIPS #1, 1996. "Conducting a Participatory Evaluation." (PN-ABS-539) (4p)
TIPS #2, 1996. "Conducting Key Informant Interviews." (PN-ABS-541) (4p)
TIPS #3, 1996. "Preparing an Evaluation Scope of Work." (PN-ABY-207) (4p)
TIPS #4, 1996. "Using Direct Observation Techniques." (PN-ABY-208) (4p)
TIPS #5, 1996. "Using Rapid Appraisal Methods." (PN-ABY-209) (4p)
TIPS #6, 1996. "Selecting Performance Indicators." (PN-ABY-214) (4p)

TIPS #7, 1996. "Preparing a Performance Monitoring Plan." (PN-ABY-215) (4p)
TIPS #8, 1996. "Establishing Performance Targets." (PN-ABY-226) (5p)
TIPS #9, 1996. "Conducting Customer Service Assessments." (PN-ABY-227) (4p)
TIPS #10, 1996. "Conducting Focus Group Interviews." (PN-ABY-233) (4p)
TIPS #11, 1997. "Role of Evaluation in USAID." (PN-ABY-239) (9p)
TIPS #12, 1998. "Guidelines for Indicator and Data Quality." (PN-ACA-927) (12p)

Also available online at http://www.dec.org/usaid_eval/#004 in PDF format.

Gosling, Louisa and Michael Edwards. 1998 [1995]. *Toolkits: A Practical Guide to Assessment, Monitoring, Review and Evaluation.* (Development Manual 5), reprint. London: Save the Children (Mary Datchelor House, 17 Grove Lane, London, UK SE5 8RD).

This compilation of materials from numerous published and unpublished sources provides a practical guide to assist in the whole "program cycle" by providing some of the means to make decisions in changing circumstances in a systematic way.

Team Technologies. PCM Resource Guide 2000. Provides guidance on how to use the TeamUP method and the Logical Framework approach under field conditions. The Resource Guide is a collection of articles and case studies on the applications of the LogFRAME and TeamUP methods, field reports from projects to which the method was applied, and step-by-step strategies for implementing a participatory project cycle management approach to your project.

Some of the articles included in the Resource Guide:

Project Cycle Management: A Staff Development Program
An outline of training modules describing the types of staff development opportunities that project cycle management offers.

The Logical Framework: A Brief Overview
A 9-page explanation of the core elements of the Logical Framework Approach; An Executive Summary!

The Logical Framework In-Depth: Following the Design Checklist
A much more in-depth analysis of each element of the Logical Framework, complete with coaching tips and examples.

Performance Improvement Planning
Describes the basic methodology for reviewing and improving performance during the implementation phase. Make use of Performance Gap Analysis and Force Field Analysis for monitoring key performance indicators of a project in order to take action towards getting the project "back on track"

Participatory Project Monitoring and Evaluation Systems
Highlights the use of the Logical Framework as the basis for structuring the Monitoring and Evaluation systems of a project. Also presents alternative methods for M&E as well as a systematic approach to participatory M&E methods.

Creating the Learning Organization
The fundamental elements of an integrated organizational development strategy.

Everyone Counts: Community-Based Health Information Systems. A Reference Compendium on the Collection, Analysis and Use of Data for Accountability in Health. 1995. Westport, CT: Save the Children (54 Wilton Road, Westport, CT 06880; tel: 203-221-4000).

It is an overview to population-based health programs including key articles from the literature and from the experience of Save the Children. It summarizes the key approaches and issues related to the development and implementation of effective information systems.

CARE. 1997. Developing a Community Information Toolbox, *2nd Annual Child Survival Workshop.* CARE (151 Ellis Street, NE Atlanta, GA 30303; tel: 404-681-2552).

This workshop was a combined effort of 10 countries where CARE works and addressed their information needs reading child survival. Highlights of the workshop included the development of "stronger" indicators with a means of measuring them, and increased understanding of community level tools of measurement, with country-specific toolbox outlines for information tools needed.

Monitoring and Evaluating Programs. 1993. URC/CHS and AGA Khan Health Services. Module 5. PHC MAP series of Module, Guides and Reference Materials (Aga Khan Foundation USA, 1901 L Street, N. W., Suite 700, Washington, DC.) Available online at http://www.urc.chs.com/pubs/map/index.htm, and at http://erc.msh.org/site/mainpage.cfm?file=map.htm&module=toolkit&language=English.

This is an excellent series of users guides and facilitators guides, which correspond to nine areas of program implementation. The practical guide clearly outlines how to set up an information system in "training design" format. Very useful and works well as a separate module or as a module in the series.

Baseline Survey Instruments

Bhattacharyya, Karabi, John Murray, and W. Amdie. 1998. *Community Assessment and Planning for Maternal and Child Health Programs: A Participatory Approach in Ethiopia.* Partnership for Child Health Care, Inc. Washington: USAID. (PN-ACD-466)

(30 pages plus 3 annexes)

Murray, John, and Serge Manoncourt. 1998. *Integrated Health Facility Assessment Manual: Using Local Planning To Improve The Quality Of Child Care At Health Facilities*. Partnership for Child Health Care. Washington: USAID. (PN-ACF-273)

Salgado, R. and H. Kalter. 1998. *Child Health Mortality Survey/Surveillance Manual.* Arlington, VA: BASICS Project and JHU Department of International Health, for USAID (BASICS Information Center, 1600 Wilson Boulevard, Suite 300, Arlington, VA 22209). Online at http://www.basics.org**.**

USAID. April 1998. *Survey Trainer's Guide for PVO Child Survival Program Rapid Knowledge, Practice, and Coverage (KPC) Surveys*. PVO Child Survival Support Program, Johns Hopkins University. Washington: USAID. (PN-ACE-292)

The guide and annex are designed for use by those who participate in the training of survey trainers (TOST) workshop. The standardized KPC survey may be used by CS projects to collect quantitative baseline information, set measurable objectives, and measure achievement of objectives. Revisions in progress may be found at http://www.macroint.com/csts.

Developing Objectives and Indicators

Foreit, James R., and Thomas Frejka, eds. 1998. *Family Planning Operations Research: A Book of Readings.* New York: The Population Council.

This book contains reprints of articles on various subjects related to operations research.

Fisher, Andrew A., John Laing, John Stoeckel, and John Townsend. 1991. *Handbook for Family Planning Operations Research Design.* ad ed. New York: The Population Council.

This is a basic handbook designed to help researchers develop sound operations research studies. The handbook is written in a simple, straightforward manner, gives lots of examples, and explains what operations research is and how to do it.

Blumenfeld, Stewart N. 1985. *Operations Research Methods: A General Approach to Primary Health Care.* Chevy Chase, MD: PRIOR. A "how to do it" manual. To order contact the Development Experience Clearing House (see section on ordering information)

Fisher, Andrew A., John Laing, and John Stoeckel. 1985. "Guidelines for Overcoming Design Problems in Family Planning Operations Research." *Studies in Family Planning, 16*(2/March–April). A Discussion of research methodological issues in operations research.

USAID/Africa Bureau, 1999 Health and Family Planning Indicators: A Tool for Results Frameworks. Washington: USAID

Qualitative Research Materials

Winch, Peter J., et al. 1999. *Qualitative Research For Improved Program Design: A Guide to Manuals for Qualitative and Participatory Research on Child Health, Nutrition and Reproductive Health.* Support for Analysis and Research in Africa (SARA) Project, Health and Human Resources Analysis for Africa (HHRAA) Project, U.S. Agency for International Development, in collaboration with Department of International Health, Johns Hopkins University, School of Hygiene and Public Health. Expected publication early 2000. Will also be available in French (later in 2000). Available from Support for Analysis and Research in Africa (SARA) Project. E-mail: sara@aed.org. Web site: http://www.aed.org.

This guide describes some of the existing manuals for conducting qualitative research on health and provides information to help would-be users select the manuals that are most appropriate to their needs. It is designed for program managers, researchers, funders of health programs and others who are considering using qualitative research methods to help them design more effective health programs, or evaluate the strengths and weaknesses of existing programs. It is assumed that the reader already has some familiarity with the basic methods in the "qualitative research toolbox" such as in-depth interviews, focus groups, and participant observation.

Evaluation

Aubel, Judi. 1999 *Participatory Program Evaluation Manual: Involving Program Stakeholders in the Evaluation Process.* Child Survival Technical Support Project and Catholic Relief Services. Calverton, MD: Macro International Inc. (CSTS Project, 11785 Beltsville Drive, Calverton, MD 20705). Online at http://www.macroint.com/csts. Available in English, French, and Spanish.

Integrating Child Survival Programs and IMCI

BHR/PVC currently defines Integrated Management of Childhood Illness (IMCI) in terms of the IMCI strategy, activities, and training materials of national Ministries of Health, and supports PVO involvement in IMCI as part of an official national effort to adapt and introduce IMCI.

According to WHO, the IMCI "strategy combines improved management of childhood illness with aspects of nutrition, immunization, and several other influences on child health, including maternal health." Using a set of interventions for integrated treatment and prevention of major childhood illness, the IMCI strategy aims to reduce death and the frequency and severity of illness and disability, and to contribute to improved growth and development. This set of interventions aims to improve practices in both health facilities and at the community level. The community level approach is relatively new and PVOs are encouraged to participate in the CORE working group and with other mechanisms to assist in the development of this strategy. The community approach is a vital component to IMCI as 60% of deaths to under 5 year olds in developing countries have been shown to occur before a child is taken to a health facility. (BASICS)

The core intervention is integrated case management of the five most important causes of childhood deaths (acute respiratory infections (ARI), diarrhea, measles, malaria, and malnutrition) and of common associated conditions. In individual countries, the combination of interventions that makes up IMCI may be modified to include other important conditions for which effective treatment and/or preventive practices have been identified. The main interventions of the global strategy may evolve, as new findings from analysis of the global burden of childhood disease and from child health research become available.

"Implementation of the IMCI strategy in countries involves the following three components:

- Improvements in the case management skills of health staff through the provision of locally adapted guidelines on integrated management of childhood illness and activities to promote their use.
- Improvements in the health system required for effective management of childhood illness.
- Improvements in family and community practices." [9]

According to WHO, "in health facilities, the IMCI strategy promotes the accurate identification of childhood illness in outpatient settings, ensures appropriate combined treatment of all major illnesses, strengthens the counseling of caretakers and the provision of preventive services, and speeds up the referral of severely ill children. The strategy also aims to improve the quality of care of sick children at the referral level. In the home setting, it promotes appropriate care seeking behaviors, improved nutrition and preventive care, and the correct implementation of prescribed care."

[9] IMCI information: Integrated Management of Childhood Illness (IMCI). Management of childhood illness in developing countries: Rationale for an integrated strategy. Division of Child Health and Development, World Health Organization, September 1997.

Wall charts and modules for training health facility clinicians in integrated case management are available for use under carefully monitored conditions, but require adaptation for use in the respective country. Adaptation involves an extensive effort which may take six months or more. Not all countries eligible for PVO Child Survival grants have officially adopted the IMCI strategy. As of December 1998, the following eligible countries were preparing for, or had already begun, national IMCI training activities:

Azerbaijan,
Bangladesh,
Benin,
Bolivia,
Botswana,
Brazil,
Cambodia,
Cote d'Ivoire,
The Dominican Republic,
Ecuador,
Egypt,
El Salvador,
Eritrea,
Ethiopia,
Georgia,
Ghana,
Haiti,
Honduras,
Nicaragua,
India,
Indonesia,
Kazakhstan,
Kenya,
Kyrgyzstan,
Madagascar,
Mali,
Malawi,
Mozambique,
Morocco,
Namibia
Nepal,
Niger,
Nigeria,
Peru,
The Philippines,
Senegal,
South Africa,
Tajikistan,
Tanzania,
Togo,
Turkmenistan
Uganda,
Uzbekistan,
Vietnam,
Zambia, and
Zimbabwe.

In addition, InterAgency Working Group for Community IMCI has selected the following countries for early implementation – Bangladesh, Bolivia, Ecuador, Egypt, Indonesia, Mali, Nepal, Peru and Uganda

In order to insure consistent and up-to-date approaches in managing and referring ill children, PVOs working with health systems in these countries are encouraged to keep in touch with the MOH, WHO, UNICEF, and/or BASICS concerning IMCI. All PVOs involved in managing sick children with malnutrition, diarrhea, pneumonia, malaria, or measles, are also encouraged to

review the IMCI materials for up-to-date information concerning these interventions. In areas where IMCI has not yet been introduced, health professionals may still be trained to effectively manage sick children using the intervention-specific protocols and training materials recommended by the MOH.

The current training materials and algorithm for assessing and treating children are designed for literate first-level health facility clinicians, and are not appropriate for marginally literate health workers. Materials for a complementary IMCI course are based on the same algorithm, but designed for less literate health facility clinicians. The complementary course has been developed by BASICS and WHO. PAHO is developing appropriately simplified IMCI algorithms and training materials for community health workers. If the simplified IMCI materials are not available for your area, programs that train CHWs should use intervention-specific algorithms and training materials designed specifically for community health workers. For example, the WHO ARI materials for CHWs (cited in the PCM section of this document), that address the overlap in the clinical presentation and treatment of pneumonia and malaria, are appropriate.

The activities required to strengthen the health system for IMCI are those that will improve local planning, supervision, drug management, organization of work at health facilities, monitoring/evaluation, and community-focused activities. These are the same activities required for delivery of any child survival intervention by the formal health system. Although these system-strengthening interventions must be consistent with national policies (e.g. policies on drug selection), they can be carried out irrespective of the stage a country has reached in preparing for or implementing IMCI case management training.

The activities required to improve family and community practices as part of IMCI are the same community-based and IEC interventions discussed in other sections of this document. However, the strategy and definition of IMCI at the community level is still evolving. Thus, until consensus can be reached and materials are available for implementation of IMCI at the community level, BHR/PVC suggests that PVO programs integrate a carefully selected package of complementary child survival interventions that address the major child survival problems of the community, and continue to describe planned child survival activities at the community level in terms of the specific interventions and activities discussed in other sections of this document.

PVOs may also play a role in facilitating linkages between all three components of IMCI mentioned above and linking local organizations involved in IMCI. This will vary from country to country and project to project, depending on the local situation.

High Recommended Materials

WHO/UNICEF. 1997. "Integrated Management of Childhood Illness: A WHO/UNICEF Initiative." WHO Bulletin, 75 (Supplement 1).

Pan America health Organization. 1999. *IMCI Bibliography.* (PAHO. Series HCT/AIEPI-17.I) (2/March 99). Comprehensive list of relevant articles on IMCI topics, for an advanced understanding of IMCI.

WHO Guidelines For Consultants: Managing The Initial Planning Process.

Claeson, Mariam, et. al. Washington, USAID/SARA *Guide for the Introduction of Integrated Management of Childhood Illness*, 1997. Academy for Educational Development 1875 Connecticut Ave, NW, Washington, DC 20009

Community Level IMCI

Improving Family and Community Practices: A Component Of The IMCI Strategy. Geneva: WHO. Can be obtained from the Department of Child and Adolescent Health and Development at WHO-Geneva.

Resources for Improving Family and Community Practices. (Division of Child Health and Development).

Child Health: Useful Tools To Implement IMCI At Home And In The Community. Working Draft. New York: UNICEF.

The Inter-Agency Working Group on Household and Community IMCI. (series of reports) New York: UNICEF.

Community-Based Sustainable Human Development: A Proposal for Going to Scale With Self-Reliant Social Development.

This tool, available from UNICEF, is not an official part of the IMCI community component but is included because it is very useful.

Course for Training Community Consultants.

This course, under development with WHO-AFRO, the SARA Project, and BASICS, is meant to produce a cadre of consultants at regional and national levels to help countries develop their community strategies. It will be implemented in the first quarter of 2000.

Community Health Worker Materials. PAHO

PAHO's IMCI Strategy at the Household and Community Levels. October 1998.

"Talking to Mothers." PAHO.

Internet Reference

More information on IMCI may be found on the Web site of the WHO Division of Child Health and Development (http://www.who.int/chd).

Sustainability and Financing

Recommended References for Sustainability and Financing

Foster, Stanley O. Sustaining The Benefits Of Child Survival Collaboration: Communities, Governments, PVOs, CSSP, and USAID/BHR/PVC. Lessons learned, 1991–94. September 18, 1995.

This document provides feedback on sustainability-related issues for PVOs. It discusses issues surrounding the definition of sustainability. There is a long list of factors which may positively or negatively affect the process of sustainability. The conclusion of the reference is that there is no single definition of sustainability. The reference presents eleven points of discussions that are very pertinent to the sustainability process.

Lassen, C. 1999. The Pillars of NGO Financial Sustainability: Options to Create More Sufficient, Diversified, Stable Financing for Your Non-Profit. Sustainable Development Services Project. Available from Lassen Associates, 1030 Park St., SE. Vienna, VA 22180. Telephone: 703-281-4535; Fax: 703-281-4534. E-mail: Lassen@erols.com.

This document discusses several options that PVOs might pursue to strengthen themselves and their projects financially. It includes a discussion about "what is financial sustainability and why is it important?", and then outlines 9 "pillars" of financial sustainability. These pillars include strategic financial planning/business planning; diversification of funding; increasing earnings; improvement of asset utilization, productivity, cost savings; creation of a focused, "high performance" program model; improvement of financial management systems; management strengthening; development of a fundraising board; and strengthening of organizational capacity.

Olsen, I. T. 1998. "Sustainability of Health Care: A Framework for Analysis." *Health Policy Planning, 13*(3/September), 287–95.

This reference introduces a conceptual framework, which can be used to study sustainability. A health service is considered sustainable when operated by an organizational system with the long-term ability to mobilize and allocate sufficient resources for activities that meet individual or public health needs.

According to the reference the framework has proven useful in analyzing factors critical to sustainability, and in describing structures and processes both in basic public services and in private non-for-profit services.

USAID/Africa Bureau, 1999 Health and Family Planning Indicators: Measuring Sustainability. Washington: USAID

Other Recommended Resource Materials

Conn, C., P. Jenkins, and Saihou Omar Touray. 1996. Strengthening health management: Experience of district teams in the Gambia. *Health Policy and Planning, 11*(1), 64–71.

Dave Sen, Priti. 1991. Community self-financing in voluntary health programmes in India. *Health Policy and Planning, 6*(1), 20–31.

Dave Sen, Priti, and Peter Berman. 1990. *The costs and financing of health care: Experiences in the voluntary sector. Case study 1—The voluntary health services, Madras.* City: The Ford Foundation.

Dave Sen, Priti, and Peter Berman. 1990. *The costs and financing of health care: Experiences in the voluntary sector. Case study 2—Sewa—rural Jhagada.* City: The Ford Foundation.

Dave Sen, Priti, and Peter Berman. 1990. *The costs and financing of health care: Experiences in the voluntary sector. Case study 3—Parivar Seva Sanstha, New Delhi.* City: The Ford Foundation.

Dave Sen, Priti, and Peter Berman. 1990. *The costs and financing of health care: Experiences in the voluntary sector. Case study 4—Ashish Gram Rachna Trust, Pachod.* City: The Ford Foundation.

Dave Sen, P. 1991. Community and self-financing in voluntary health programmes in India. *Health Policy and Planning, 6*(1), 20–31.

DeRoeck, D. 1999. *Making NGOs more sustainable: A review of NGO and donor efforts.* Special Initiatives Report, Partnership for Health Reform Project. Bethesda, MD: Abt Associates Inc.

DeRoeck, D. 1997. *Review of health-sector NGOs' efforts and activities to become sustainable.* Draft paper. Partnership for Health Reform Project. Bethesda, MD: Abt Associates Inc.

De Winter, E. 1993. Which way to sustainability? External support to health projects in developing countries. *Health Policy and Planning, 8*(2), 150–156.

Farrell, T., J. Bratt, and M. Ganuza. 1993. Sustainability assessment of Dominican Republic non-governmental organizations, final report. Arlington, VA: PROFIT Project.

Fishstein, P., R. Roberts, and M. Watt. 1994. *Selection of sustainability indicators for the Bangladesh CA/NGO Project, August 7–26.* Boston: Family Planning Management Development Project.

Fort, C. 1991. Promoting NGO sustainability: The lessons of enterprise. Arlington, VA: The Enterprise Project.

The Futures Group. 1993. Target-cost: A model for projecting the family planning service requirements and costs to achieve demographic goals. Tool prepared for the Options II Project, Washington, DC.

Lafond, A. 1995. Sustainability in the health sector: The research study. *Health Policy and Planning, 10*(Supplement), 1–5.

LaForgia, G., and Stephen Heining. 1992. *The potential for sustained provision of health services by sector PVOs in the Dominican Republic.* Technical Report No. 9, Health Financing and Sustainability Project. Bethesda, MD: Abt Associates Inc.

[Mujinja, P. G. M., and Richard Mabala. 1992. *Charging for services in non-governmental health facilities in Tanzania.* Bamako Initiative Technical Report Series No. 7, United Nations Children's Fund. City: Publisher.

Population Services International. 1996. *Improving health care in Zambia through the franchising of private-sector clinics.* City: Publisher.

Private Initiatives for Primary Healthcare Project. 1997. *Lessons learned in the initiatives project 1992–1997.* Arlington, VA: John Snow, Inc.

Private Initiatives for Primary Healthcare Project. 1996. *NGO Sustainability: Findings and recommendations from an assessment of Nigerian organizations.* City: Publisher.

Pulley, C., B. Hoffman, John Rigby, et al. 1993. Endowments as a tool for financial sustainability: A manual for NGOs. Arlington, VA: Promoting Financial Investments and Transfers (PROFIT).

Stinson, W. 1982. *Community financing of primary health care.* Washington, DC: American Public Health Association.

Zuckerman, Elaine, and Emanuel de Kadt, eds. 1997. *The public-private mix in social services: Health care and education in Chile, Costa Rica and Venezuela.* City: Inter-American Development Bank.

Capacity Building

Capacity building is a term that has been defined in many different ways by the PVO community, donor organizations, and development specialists. Sample definitions of capacity building include:

- Capacity building is a highly individualized process—grounded in local reality and specific to organizational needs…The achievement of lasting capacity is generally linked to a change in organizational culture…Capacity building is an ongoing, incremental, non-linear process (USAID/BHR/PVC, New Partnership Initiative).

- The process by which individuals, organizations, institutions, and societies develop abilities (individually and collectively) to perform functions, solve problems, and set and achieve objectives. (UNDP Management Development and Governance Division-1997)

- The process by which individuals, institutions, and societies increase their abilities to perform core functions, solve problems, define and achieve objectives and understand and deal with their development needs in a broad context and in a sustainable manner (Partnership Branch of Canadian International Development Agency (CIDA))

While these definitions may prove helpful to organizations planning a child survival program, it is also important to understand the concept of capacity building within the context of PVC's strategic objective: *increased capability of PVC's PVO partners to achieve sustainable service delivery*. Five intermediate results (IRs) contribute to this objective, and it is through these IRs that PVOs can gain insights into the potential focus of their capacity building efforts in child survival. Each IR is outlined briefly below, with a discussion of its potential implications for child survival programming.

- *Operational and Technical Capacity of U.S. PVOs Improved*: this IR focuses on the capacity of the grantee PVOs funded through the Child Survival Grants Program, and relates to improvements in the professional skills of PVO staff as well as in organizational systems, including the ongoing application of "lessons learned" for improving child survival programming.

- *Strengthened Partnership between USAID and U.S. PVOs*: This IR recognizes that increased PVO capabilities will result in stronger collaboration between USAID and its US PVOs, which in turn will contribute to the catalytic role that PVC has played in promoting policy and programmatic improvements that are already being forged between the Agency and the PVO community.

- *Strengthened U.S. PVO Partnerships with local partners*: this IR focuses on the grantee PVO's ability to structure partnerships that help shift the capability and responsibility for sustainable service delivery to their local partners.

- *Improved Mobilization of Resources by PVC's PVO Partners*: this IR acknowledges the need for greater efforts on the part of the PVO community to diversify its income resources. PVC strives to support PVOs in their efforts to mobilize the resources that will be needed to expand upon current programs and promote sustainability.

- *U.S. Public Awareness Raised*: This IR focuses on the responsibility that PVC and the PVO community share with respect to ensuring that the American people understand the intentions and impact of development programs, particularly those that U.S. PVOs and their local NGO partners carry out in collaboration with USAID. From a capacity building perspective, this IR implies that PVOs should develop their capabilities to document and articulate their experiences in a meaningful manner.

Within this framework, it is important for PVOs to focus their capacity building efforts not only at the level of the target community's capability to sustain project interventions, but also at the level of its local partner organizations to sustain project interventions; and the PVOs own capacity to implement sustainable Child Survival Programs and to share its learning with other members of the Child Survival Community. At the outset of a project, it is important to gain a baseline measure of capacity at each of these three levels, and to identify specific indicators and activities that are linked to those indicators.

Capacity building efforts may focus on individual knowledge and skills development (e.g., community health workers can clearly explain IMCI protocols); organizational systems (e.g., a census-based management information system is integrated into the MOH and data is fed back into the project to guide policy and management decisions); or institutional change (coalition/network development, systems that affect policy at the local government level, etc). These efforts can focus on any number of capacity areas including the use and management of technical knowledge and skills, strategic management practices, organizational learning, financial resource management, human resource management, and sustainability.

Recommended References for Capacity Building

Lusthaus, C. et al. 1999. Enhancing Organizational Performance: A Toolbox for Self-Assessment. International Development Research Centre. Ottawa, ON, Canada. (see ordering information for directions on ordering IDRC documents in the U.S.)

This guidebook presents an innovative and thoroughly tested model for organizational self-assessment. Its tools and tips go beyond measuring the impact of programs, products and services. They integrate techniques of formative assessment, in which the assessment team become involved in helping its organization become more effective in meeting its goals. The tools and techniques are flexible, and the model can be adapted to any type or size of organization. Worksheets and hands-on exercises are included.

The Centre for Development and Population Activities (CEDPA). The CEDPA Training Manual Series. Copyright 1995: CEDPA; 1400 Sixteenth Street, N.W., Suite 100; Washington, D.C. 20036. Tel: 202-667-1142, Fax: 202-332-4496, e-mail: cmail@cedpa.org

CEDPA has developed a number of training manuals that may be useful to Child Survival PVOs in both the planning and implementation of their programs, including:

- Training Trainers for Development: Conducting a Workshop on Participatory Training Techniques—The CEDPA Training Manual Series Volume I
- Project Design for Program Managers: Conducting a Workshop on Planning Community-based Projects—The CEDPA Training Manual Series Volume II
- Integrating STDs and AIDS Services into Family Planning Programs: Training Community Workers—The CEDPA Training Manual Series Volume SD-I
- Training Community-based Distribution Agents in Family Planning: A Comprehensive Ten-Day Curriculum—The CEDPA Training Manual Series Volume SD-2
- Supervision—The CEDPA Training Manual Series Volume IV

USAID/BHR/PVC. *New Partnership Initiative, NPI Resource Guide*. Chapter 3: Local Capacity Building. (ordering/downloading information to be confirmed)

This chapter discusses assessing and strengthening the capacity of individual organizations and the inter-organizational partnerships. Capacity building of organizations and partnerships is a central activity of NPI, with a primary focus at the local level. Effective capacity building is critical to creating strong and vibrant civil society, business and local governance sectors and to achieving effective collaborative action among these three sectors. A capable organization is able to identify problems with respect to its mission, formulate effective policies to respond to these problems, design effective programs to reflect these policies, and manage their implementation in ways that optimize impact. Organizational capacity building depends on the availability of people with appropriate skills; work and incentive systems that enable individuals to make productive use of those skills; and sets of systems that combine these individual efforts for a joint impact. A partnership is strengthened by developing mechanisms that facilitate information and resource exchange among members so as to effectively and efficiently achieve joint objectives.

Internet References

DOSA Website: http://www.edc.org/INT/CapDev/dosapage.htm

DOSA is a powerful change process that offers participating organizations concrete assessment tools and change methods suited to organizational climate and culture.

The DOSA page is dedicated to helping PVOs and NGOs develop new methods to identify organizational strengths and weaknesses, interpret highly valuable data generated by the process and to translate findings into action plans for meaningful change.

If you're part of an organization that has already used DOSA, you can review your results as well as the notes on interpretation, findings, and GRID, a DOSA companion tool that will help you translate DOSA scores into an effective action program. At this site, you can also take a quick look at the capacity areas DOSA measures as well as see a copy of the tool itself (This is a PDF file and is only viewable with the Adobe Acrobat Reader. You can also access other capacity assessment tools and resources by perusing this website, participate in online discussion forums, and to subscribe to DOSAnet, a moderated electronic discussion list about PVO/NGO capacity building.

The Health Manager's Toolkit (part of the Manager's Electronic Resource Center) http://erc.msh.org/index.cfm, or send e-mail for information to toolkit@msh.org

This site features a web-based collection of management tools to help health professionals effectively plan and implement their activities. All tools have been developed and used by agencies working in health and family planning around the world. The site features management tools for clinical services; financial management; information management; health policy and reform; organizational sustainability; human resources management; organizational planning; community health services; drug and supply management; and quality.

The GEM Initiative website [http://www.geminitiative.org]

Global Excellence in Management (GEM) is a university-based program of learning and education that works in partnership with U.S. Private and Voluntary Organizations (PVOs) and international Non-Governmental Organizations (NGOs) to conduct capacity building programs that support new models of institutional excellence.

GEM is known for programs that are original and intellectually alive; for its signature themes of appreciative inquiry, global partnership and knowledge generation; for its human-centered approach responsive to the advanced learning agendas of PVO and NGO leadership teams; and for capacity building work that is collaboratively constructed for enduring consequence.

Participation in GEM programs enables organizations to discover and heighten their capacities to continuously learn, change and innovate. The purpose of GEM is to provide innovative resources to PVOs and NGOs to enhance their institutional capacity to deliver effective development assistance.

At this web-site, the user can access articles from the GEM Journal or learn more about GEM's programs.

Many of PVC's capacity-building initiatives for NGOs and success stories are described in greater detail in individual descriptions available from PVC. Also visit the PVC website at http://www.info.usaid.gov/hum_response/pvc

Quality Assurance

Quality assurance focuses on identifying opportunities for improvement based on clients' needs and continuously improving health service delivery through regular examination of data. When beginning your quality assurance effort, incorporating the following key principles ensures the likelihood of success:

- **Quality assurance must maintain a client focus**. In designing and monitoring health services, one must consider the needs and expectations of both external clients (patients and communities) and internal clients (doctors, nurses, and other health workers). Both perspectives are necessary. Considering the needs of both external and internal clients leads to equity, appropriate utilization of services and technically sound care provided by well-motivated professionals.

- **Quality assurance must rely on measurement and data to determine if quality is being achieved and to identify problems and causes of problems.** To know whether or not quality has improved, it must be measured. Data helps to identify unacceptable variations in care or outcomes. Monitoring the quality of care is necessary both in one-off assessments to establish a baseline of current performance and routine measures to constantly determine the ongoing level of quality delivered.

- **Quality assurance must rely on a team approach to solve problems and to improve the systems of care.** Recent experience has confirmed that teams of health workers can be empowered to analyze and redesign their own work processes with improvements in both outcomes and efficiency. Improving quality can range from simple just "fix it" management decisions to more elaborate root-cause analysis methods designed for addressing complex multi-system problem areas.

- **Quality assurance focuses on systems and processes.** Good health care does not result merely from the encounter between a health worker and a patient but from the interaction of a large number of people working in different subsystems and processes. All parts of the system must be functioning well for optimal results to be achieved. Systems are made up of inputs (resources), processes (actions) and outcomes (results).

- **Quality assurance necessitates effective leadership.** Leaders are needed to define the vision of quality, communicate it, and model its attainment. Leaders also approve financial investment in improving quality and provide and approve time spent in quality pursuits. Most importantly, leaders must "walk the talk" or model ideal behavior.

Figure 1

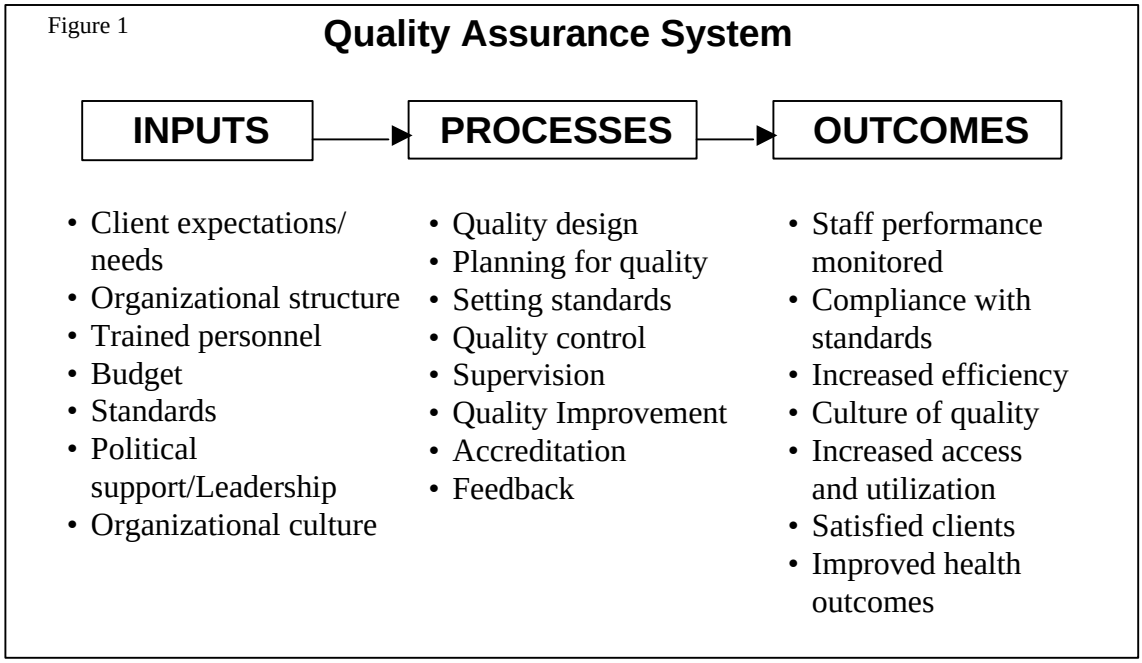

Figure 1 illustrates some of the inputs and processes needed in a quality assurance effort to attain such desired outcomes as satisfied clients and improved health outcomes. Achieving quality is a multi-faceted approach — experience shows that a combination of those processes in Figure 1 achieves more improved and sustained quality than just employing one alone. The following documents illustrate in detail a selection of these processes and the specific steps or tasks associated with them.

Recommended References for Quality Assurance

Bouchet, Bruno. 1999. *Monitoring the Quality of Primary Health Care.* Bethesda, MD: Center for Human Services.

A step-by-step guide to designing a system of indicator-based monitoring, with examples. Includes information on issues related to the decision to monitor quality of care systematically, the difference between monitoring and evaluation, and an approach which, though starting from a few simple indicators, can be expanded to address the broad scope of care in any primary care environment. The process of developing indicators can apply to any clinical or administrative environment, though the examples stress primary care settings.

Achieving Quality through Problem Solving and Process Improvement. Franco L, Newman J, Murphy G, Marianai E. QA Project, Center for Human Services, Bethesda, MD, 1997 www.urc-chs.com has a PDF file of this monograph for downloading.

The first section of this two-part monograph presents a 6-step approach to problem solving and process improvement, using modern QA/QI tools and techniques. It explains each step, using case examples to foster understanding. Each step contains an explanation of activities to take within the step, and advice on how to know it is time to go on to the next step. It guides the reader through a complete root cause analysis using process flow charting, cause effect analysis, data gathering to validate root cause, solution development, implementation, and monitoring to determine if improvement is sustained. The second section of the monograph contains "how-to" information about using 16 tools and techniques most commonly associated with quality improvement efforts. These instructions contain detailed information about when to use the tool/technique, how to use it, cautions, and examples. The monograph also contains a glossary of common QA / QI terms.

Quality Assurance of Health Care in Developing Countries L Brown, L Franco, N Rafeh, T Hatzell QA Project, Center for Human Services, Bethesda MD, 2nd ed., 1998 www.urc-chs.com has a PDF file of this monograph for downloading

This reference is the basic "need to know" information if you want to start doing QA/QI at the country level. It contains basic information on the meaning of quality, pointing out variations in meaning that result from differing perspectives and dimensions from which quality is viewed. A cycle is proposed, which describes activities essential to planning for quality, setting standards, and measuring and improving quality. It overviews a root-cause analysis type of problem solving, an intervention many countries choose as the place to start doing QA/QI. Ten essential elements for a country to consider when starting QA are presented. Though additional activities could be done, the information presented here would be sufficient to get a country started planning a QA/QI program.

Note: The Primary-Health Care Management Advancement Program (PHCMAP) is another excellent resource on Quality Assurance. See the full reference for this resource in the General Reference Material section of this document.

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